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ORIGINAL COMMUNICATIONS.

THE NERVOUS PHENOMENA OF PROSTATIC DISEASE AND THEIR RELATION TO TREATMENT.

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The nervous phenomena of prostatic and deep urethral disease resolve themselves into two kinds: first, those that are directly dependent upon and are part of the symptom-group of the local disease, and secondly, those which are merely indirect outcomes or sequelæ.

Among the first are various associated and referred pains and sensations. They are features added to the purely local symptoms and may be briefly enumerated as follows: Pain in the upper sacral and lumbar region, spreading, it may be, up to the level of the shoulder-blades; painful sensations referred to the groins or diffused over the iliac fossæ; pain referred to the testes or to the spermatic cords; pain referred to the thighs; also sensations of pressure referred to the top of the head or diffused widely over the head; finally, though less frequently, actual headache. Occasionally also distressing sensations are referred to the precordia. These features, which in a measure suggest the associated nervous symptoms met with in women with disease of the uterus, are not to be regarded as neurasthenic manifestations but as part and parcel of the symptom-group of the prostatic disease itself. We must remember that the symptoms of neurasthenia are those of chronic nervous fatigue, and constitute, properly speaking, the symptom-group of the "fatigue neurosis." That they differ radically from the nervous phenomena, referred pains and other symptoms, the result of visceral disease, need hardly be pointed out.

As to the mechanism by means of which nervous symptoms of prostatic disease are produced, it is idle to speculate. However, we can readily picture to ourselves how, the spinal centers being directly involved in disease of the sexual apparatus, irritation and exhaustion of these centers may be diffused over the various structures of the cord and perhaps of the sympathetic system, and in this way give rise to the referred sensations of which the patient complains.

Patients with prostatic and deep urethral disease often complain also of difficulty in thinking, difficulty in the performance of mental acts which require concentration, and they commonly manifest a distinct disinclination for mental work. Further, they often complain of disturbed sleep, and sometimes indeed there is a decided insomnia.

Associated with the symptom-group here briefly outlined, we very frequently have secondary symptoms, the indirect outgrowths of the local disease, and these are distinctly psychic in character. The psychic picture presented depends largely upon the age of the patient. If the patient be a relatively young man, or one still in the period of full sexual activity, his thoughts assume a distinctly sexual character. Almost involuntarily his thoughts become centered upon his sexual organs and functions. Not

infrequently, as is well known, he reads all sorts of literature, much of it misleading and objectionable, in reference to sexual matters. Further, he quite commonly comes to the physician with statements which show that he has closely studied the appearance of his genitals; he often declares that the latter are becoming smaller, are undergoing atrophy, or present some other, to him, strange peculiarity. Not infrequently also the patient closely observes his urine. If the latter happens to be cloudy with mucus, he declares that it contains spermatic fluid, and a similar interpretation is often placed upon the phenomena when phosphaturia happens to be present. His mental attitude is that of a more or less marked depression. Quite commonly he accuses himself of past sexual abuses, declares that he has lost his sexual power, the blame for which he fixes upon himself. Self-mutilation and even suicide have been known to occur under these circumstances.

When we study the influence of prostatic and deep urethral disease upon young individuals, we should not forget the influence of a neuropathic make-up. There can be no doubt that a previously existing neuropathy greatly influences the resultant mental picture. The greater the neuropathy, the more profound and distressing the mental symptoms. To show how true this is, we have only to call to mind the picture of typical sexual hypochondria in which there is no affection either of the prostate, the urethra, or other portion of the genital apparatus. In such case the patient suffers from a true psychoneurosis, one independent of visceral disease and the outgrowth of an inherent neuropathy. It stands to reason that when such an inherent neuropathy exists in an individual in whom prostatic and urethral disease is also subsequently established, the prognosis becomes very unfavorable. Sexual hypochondria is proverbially difficult to treat, and becomes much more so when actual organic disease is present.

If instead of being a young man the patient happens to be relatively old or aged at the time that prostatic disease is established, very remarkable mental phenomena may manifest themselves—*i.e.*, there may be a recrudescence of sexual thoughts and feelings. There can be no doubt that some of the cases of old men falling in love and some of the marriages of old men are to be attributed to prostatic disease, often unrecognized and undiscovered. Sexual recrudescence in old age is, of course, always pathological. Now and then we meet with it in senile dementia, and here it appears to be the outcome not only of the mental weakness and the diminished inhibition of old age, but also quite frequently the result of the peripheral irritation of prostatic disease. Here are to be classed also some of the instances of exhibitionism, of rape, and of toying with children by old men.

At times the mental phenomena are of such character as to show that the patient has stepped clearly beyond the bounds of sanity. Among the symptoms are delusions, at times expansive, especially when relating to the physical vigor and health of the patient, but at times and more frequently they are depressive. The patient often believes that he is ill-treated and abused—it may be by his children, who oppose a second marriage. At other times he is toxic from the bladder and prostatic conditions and becomes hallucinatory and confused. That such cases, due in part to the senile mental state and in part to the prostatic disease, not infrequently give rise to serious trouble and unhappiness in families, to the making of improper and unjust wills and to subsequent contests in the courts, is a story with which many of us are familiar.

Finally, the feebleness of resistance—*i.e.*, nervous and psychic vulnerability—of old men to prostatic operations, more especially prostatectomy, is well known. At times and in addition to the symptoms of physical shock with which the surgeon is familiar, there arise mental symptoms. As a rule the latter are not immediate sequelæ of the operation, but only supervene after many days or even weeks have elapsed. They manifest themselves in the form of mental confusion. The confusion is not active, but

is notwithstanding pronounced; not infrequently there are present auditory and somatic hallucinations, together with fragmentary and unsystematized delusions painful and depressive in character. When once established the condition lasts for weeks, sometimes for months, and is often incorrectly spoken of as a melancholia.

Quite usually lucidity is gradually reëstablished, but the patient may remain depressed for a long time with painful ideas, such as poverty and neglect, persisting. It does not differ on the whole from the mental confusion which occurs now and then as a sequel of other operations upon the aged; yet the thought suggests itself that in cases of prostatectomy it is primarily due to the absorption of toxins either from the diseased prostate or from the surfaces exposed by the operation. We should call to mind again that a mental confusion every now and then occurs in old women with fibroid of the uterus, especially when the fibroid is degenerating. In other words, there is here a certain parallelism of symptoms.

A PERIOSTEOTOME FOR CLEFT PALATE OPERATIONS.

BY BENJAMIN BRABSON CATES, M.D., KNOXVILLE, TENNESSEE.

That surgeons are not agreed as to the best methods of closing the defect in cleft palate is evidenced in the many operations offered to the profession by different operators.

The majority of surgeons admit, however, the chief cause of failure following staphylorrhaphy is cutting out of the sutures, the cause of the sutures cutting through being an undue amount of tension on the flaps, owing to imperfect mobilization of tissues designed to bridge over the crevice in the palate.

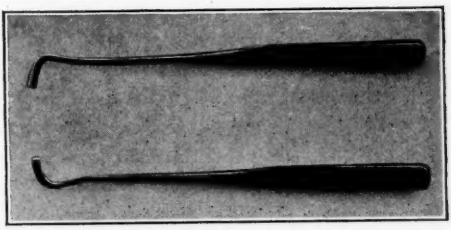
In an ideal cleft palate operation the flaps following mobilization should easily fall together somewhat after the manner of the lids to a trap-door, the function of sutures being simply to hold the new surface *vis-à-vis,* and thus prevent any overriding of the tissue.

Therefore, any agent or instrument that will simplify the technique of cleft palate operations will have to do with facilitating mobilization of the flaps and minimizing hemorrhage.

For this purpose I have designed a periosteotome—right and left—that will meet every indication for mobilizing the flaps in staphylorrhaphy and reduce the difficulties of an otherwise irksome operation.

By following the plan suggested by Brophy in his excellent monograph, "Surgical Treatment of Palate Defects"—that is, commencing at the cleft, and working out toward the alveolus—the soft parts can be easily mobilized. Also, by following the periosteotome with ribbons of gauze packed in between the flaps and hard palate, hemorrhage can be to a great extent controlled.

Of course, it goes without saying the edges of the cleft in the soft palate are to be freshened. It is needless to further pare



the edges of the flap removed from the hard palate, as they are already freshened by mobilization; besides, such a step would sacrifice an unnecessary amount of tissue needed to close the fissure.

Having then relieved all tension on the flaps so that they are easily approximated, introduce three or four stay sutures of silk, and between each stay suture introduce one or two horsehair sutures to keep the edges of the flaps from turning in.

The periosteotomes are so constructed—the cutting edge being on a curve, at an oblique angle to the shank, and another

curve on the shank—that the operator may assume any angle in a small space and thus complete the mobilization of the flaps with ease and despatch.

A reference to the accompanying illustration will give one an idea of the shape and potentialities of my periosteotomes for cleft palate work.

Finally, instruments to facilitate mobilization of the flaps, and rectal anesthesia, will in a measure solve the riddle of cleft palate surgery.

In operations on the head and face, or in the mouth, the operator is for obvious reasons seriously handicapped if he attempts to keep his patient quiet by giving ether by the mouth with the ordinary masks. Consequently I use ether by the rectum. This gives one a field unhampered by masks and unnecessary helpers. One assistant is all sufficient.

One of the best devices I have seen for rectal anesthesia is gotten up by Dr. E. R. Zemp, of Knoxville, Tennessee.

WHEN AND WHY REMOVE THE FAUCIAL TONSIL?

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The exact rôle that the faucial tonsil plays in the human economy is still a matter of controversy. It is not a vestigial organ as is the appendix, for as was first pointed out by Packard, it passes through the varying scales of animal life upward from a rudimentary form in the reptile, until in man it is found as a somewhat complex organ. That it has functions is conceded.

It is most generally accepted that in common with the other lymph structures it has to do with the manufacture of leucocytes and is a protective organ. If it has any function aside from the phagocytic action of its cellular elements, such undetermined function may be ignored in dealing with the question of its removal—for tonsillectomy has been done many thousands of times with not any but beneficial after-effects.

Any contention that a portion of tonsil tissue should be left *in situ* because of a possible secretion needful to the economy of the body seems not well taken. Acknowledging then the protective function of the healthy tonsillar gland, the question suggested by the title of this paper is answered by the following statement: the tonsil should be removed whenever its structure has become so altered that it no longer acts as an agent conserving health; providing that this perversion of its function is evidenced by pathologic changes or processes of disease, either local, regional, or systemic.

This is, of course, only another way of stating that a diseased tonsil, causing trouble, should be removed. The problem of saying clinically when that condition is present, remains.

In order to approach the question with any degree of understanding some knowledge of the anatomy of the part is necessary, and a glance at the mode of formation of the tonsil as learned by embryological studies by various investigators is of material aid. As given by Ballenger, the tonsil is situated in the sinus tonsillaris between the faucial pillars, and has its origin in an invagination of the hypoblast at this point. Later this depression is divided into compartments which become the permanent crypts of the tonsil, and around these lymphoid tissue is deposited, and the tonsillar mass built up.

These crypts are from eight to twenty in number, are lined by mucous membrane continuous with that covering the free surface of the tonsil, and they traverse the whole depth of gland structure from inner free surface to outer capsular surface. The mucous membrane lining these crypts is usually the first part of the tonsil to become diseased, and it is because of this that any stump remaining after tonsillotomy is usu-

ally a source of as much trouble as was the whole gland before the slicing was done. Thus is explained, anatomically, the difficulty experienced in curing tonsillar disease by any measure short of enucleation.

A dozen years ago the indications for the removal or partial removal of the faucial tonsil as given in the text-books usually embraced two, or possibly three, conditions: First, obstructive hypertrophy—*i.e.*, the tonsils extending far beyond the borders of the pillars almost to the median line of the pharynx; secondly, recurring attacks of acute lacunar tonsillitis; thirdly, recurring attacks of peritonsillar abscess or quinsy.

The indications for tonsillectomy as given to-day by prominent writers on ear, nose, and throat work cover a broad range of pathological conditions. Beck, in the *Journal of the American Medical Association* for October, 1910, classifies them in this manner:

"The following are some of the conditions which are beneficially influenced by complete enucleation of the tonsils. They may be subdivided into three groups: (1) Local, or conditions affecting the tonsil itself. (2) Regional, or conditions in close proximity to the tonsil. (3) Systemic or general.

"1. The local conditions demanding enucleation of the tonsils are the following: (1) Chronic lacunar tonsillitis in which there are repeated acute attacks. (2) Chronic lacunar tonsillitis in which there are repeated attacks of peritonsillar abscess. (3) Tuberculous tonsil. (4) Primary chancre of the tonsil. (5) Malignant disease of the tonsil. (6) Acute infections, such as diphtheria, scarlet fever, etc.

"2. The regional conditions demanding enucleation of the tonsil are as follows: (1) Chronic persistent pharyngitis, especially lateral. (2) Tubal catarrh with associated middle-ear disease. (3) Enlarged glands of the neck. (4) Apical tuberculous infection. (5) Perpetuating bronchitis in children.

"3. The general or systemic conditions are the following: (1) Rheumatism with its complications and sequelæ, as endocarditis and myocarditis, arteriosclerosis, arthritis, pericarditis, pleurisy, peritonitis, perineuritis, and myositis—the so-called muscular rheumatism. (2) Blood changes, as chronic septicemia, with secondary anemia. (3) Gastrointestinal disturbances, such as gastroenteritis and duodenal catarrh, with a subsequent cholangitis. (4) Parenchymatous changes, such as parenchymatous nephritis, hepatitis, and pancreatitis. (5) Changes in the special organs, as episcleritis and phlyctenular keratoconjunctivitis."

And to this list the writer would add chorea.

It is not within the purpose of this paper to discuss this list of indications in detail. It has rather been quoted in order to emphasize the breadth and importance of the subject and the tendency toward holding the tonsil responsible for many of the ills our flesh is heir to. In properly selected cases in every one of these conditions tonsillectomy will do good and is called for; there are, however, probably but few so enthusiastic as to advise tonsil removal as a curative measure in each and all of the ailments making up the foregoing list of indications, as a routine procedure.

It is not likely that the tonsil will be proven to be the sole entrance-way for the various infectious diseases named, and any routine removal will certainly result in many failures to cure. It behooves us to enter carefully into the diagnosis in each individual instance, paying due attention to the history of the case and to the local and systemic conditions present.

A few points the writer would especially emphasize as of value are these:

1. A small tonsil may require removal as urgently as a large one. Size has nothing to do with the indications for removal, excepting for symptoms of obstruction.

2. Simple hypertrophy in a healthy individual is not an indication for removal.

3. Simple hypertrophy becomes an indication for removal when the degree is such that respiration, deglutition, or speech is interfered with.

4. Tonsils with crypts which fail to clear themselves become the seat of chronic lacu-

nar disease, and systemic infection is likely to occur.

5. As a general proposition the free, outstanding tonsil is less likely to cause trouble than the submerged tonsil. This is because drainage from the crypts is better.

6. The submerged tonsil, partly buried beneath the faucial pillars, is very likely to require removal, because drainage from the crypts, especially those emptying into the supratonsillar fossa, is interfered with. In examining this class of cases the pillars should be retracted in order to better investigate the condition of the crypts.

7. Glands at the angle of the jaw that persistently remain palpable are evidence that the tonsillar barrier to infection has been passed, and are indications for tonsil removal.

1212 SPRUCE STREET.

THE IMPORTANCE OF REST IN THE PREVENTION AND TREATMENT OF DISEASE.

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Rest is the supreme remedy of nature, and during sleep—that is, during physical and mental rest—her best work is done.

In the recumbent posture circulatory and respiratory activity are slowed, and organs distended and engorged with blood during work return to their normal size, rest individually, and allow repair of daily wear and tear of injuries received.

Rest in the recumbent posture is the most powerful prophylactic and therapeutic agent we possess, and its value, appreciated by the laity to a large extent, is undervalued by the medical profession. Though it is true that the surgeon entirely relies on rest after his operation to heal the wounds he made, and though physicians advise rest in bed and employ it, thanks to the labors of Weir Mitchell, Playfair, and others, in certain nervous diseases, we are far from prescribing it as a remedy in every disease. I have never seen in print nor have I ever heard of such an explanation, though I have searched for it, being impressed with the importance of rest to cure disease ever since I have practiced medicine. Recognizing long that nothing but the blood itself cures and that physicians and surgeons only can assist nature *by purifying it, correcting its composition and bringing it where needed,* I was forced to consider drugs and methods of treatment only as means to accomplish this end. Whether we employ specifics like quinine in malaria, antitoxic serum in diphtheria, and mercury and arsenic preparations in syphilis, or any other remedy, we only purify the blood, change its composition, increase its defensive powers, and influence its distribution.

The recumbent posture is the most important measure to influence the circulation beneficially, and nature forces us to assume it with pain, with chills, and with fever, whenever it becomes a matter of necessity to protect the organism from serious and permanent injury or to preserve life. If her command is obeyed, danger is more or less successfully warded off, pain is eased or ceases entirely, chills stop or lessen in frequency, and the temperature assumes a regular course. Nature is in a better position to cure, and commences at once her work of repair. If the patient rises before the work is done, a relapse is the consequence, and violent chills, high temperature, and sweats with death may follow, or a chronic disease takes the place of the acute attack from which the patient may never recover.

Not alone when the organism is attacked by disease but even in every-day life nature forces us to lie down after a day's work with fatigue and soreness in every joint and muscle. At once we feel the relief of the change of position, stretch arms and legs with agreeable sensations, and pass into

sleep—the best condition for nature to free the blood from waste matter and to repair damage done to the cells during the day. The blood-pressure is but little influenced by sleep, yet after lying down it falls, explained by the posture and relaxation, and when waking hours approach and the blood is freed from the waste, the toxins of fatigue, and repair made, muscular tone returns and the blood-pressure rises. It seems almost superfluous to explain the importance of rest in the recumbent posture when we see the ample provisions made by nature to secure it when needed and the serious consequences that with certainty follow a disregard of her warnings immediate and prompt or slow.

Notwithstanding everybody can see it daily and study the ravages done by wilful neglect or by ignorance—relapse and death after an acute infectious disease has run its course and the patient has passed into convalescence, or premature age, marked by sclerosed and damaged vessels and viscera that are broken down long before their time—there is hardly a person living that will obey this most important of nature's commands when first called upon by fatigue, in neglect of business or pleasure. Only when the warning becomes more urgent, and pain and fever force the patient to lie down, does he rest, and even then it is done grudgingly. Many are the means to frustrate nature's design—coffee, tea, tobacco and alcohol in numberless forms are used to keep up the strenuous life of hard work and pleasure, when rest is peremptorily demanded, and the cry for tonics is heard from morning until night by every physician; newspapers and periodicals bring pages filled with the praise of concoctions that have alcohol and stimulating drugs as their active contents.

Those who are born with a weak constitution and might escape suffering and live up to the fifties die before middle age is reached, and those who spring from a healthy parentage and are favored with a good constitution and ought to be octogenarians, and even reach a hundred, usually die in the early sixties with pneumonia or apoplexies due to arteriosclerosis, nephritis, heart disease, etc.—in fact, every organ is more or less worn out by that time, and the system is in such a condition as not to be able to stand any additional strain. No physician can add a single day to anybody's life, but he can protect his patient in disease from premature death, from shortening his life, and prolong his usefulness to himself and others and so prevent suffering.

The human body is a complicated mechanism, and length of life and usefulness depend on inheritance, the make-up, the quality of the machine, on wear and tear due to injuries received, including the infectious diseases, and finally on use and abuse of the organism. Each one differs from another and age is but relative. A man may be old at forty, and young and useful with many years of active life before him at sixty. It is impossible to compare one man with the other, and to say that people are useless at forty and ought to be chloroformed at sixty is ignoring these fundamental facts.

It is a daily sight to observe bookkeepers half asleep at their desks, forcing themselves to work, shop-girls and clerks at the counter hardly able to stand up to wait on the customer, and the man of affairs and of brain work stimulated to work his tired brain, and with it all the constant preaching that work never kills, that work is healthy. More than that, the very young are forced to long hours of work with hardly an intermission of sufficient length to finish a meal.

The injurious effect of neglect is obvious, although it has not been explained within my knowledge, and yet the explanation seems to be so simple as to be almost commonplace.

Blood and lymph have to be kept in the upper portion of the body by muscular tone and heart force, and have to be returned from the lower portion by the same means assisted by exercise. All this has to be done against gravity, and it is clear that the amount of energy required for this purpose is limited.

A man of regular habits after a night of dissipation looks old, due to the lack of

blood and lymph in the head, and a tired worker after a little while of rest in the recumbent posture feels fresh and ready to work again. After being a certain length of time in the upright position, muscular tone is lost, the heart tires, and blood and lymph follow the law of gravity. This influences the circulation throughout the body, the abdominal viscera become congested, venous pressure rises and arterial pressure falls. A man in this condition may fall an easy victim to disease.

Age demands an after-dinner nap to interrupt the long hours of the day, and the old are forced to go to bed early or fall asleep in the chair. In hot climates, enervating on account of muscular relaxation and lack of tone, the midday siesta is common, and in the towns of Italy and Spain during the noon hours the shops are closed.

Unfortunately we have not learned by this experience, although every chance is taken to put up the legs on anything that comes handy, and lean back in a rocker or tilt the chair to get rest. The day is commenced with a cup of strong coffee to tone up and a cocktail at noon to help over the tiring hours of the day. With this explanation it is easily understood why nature should make such peremptory demands for rest in the recumbent posture when life is threatened by acute disease or overwork and fatigue exhausts the system. "Nature demands her rights;" it assists us in our practice, and the society woman who would not go early to bed or lie down in the middle of the day is ready to follow our advice when we can convince her that a wrinkled face and sallow complexion will be the consequence of persisting in her habits. The brain and day laborer will yield, finding out that they can do better and more efficient work by following the advice. The explanation appeals to everybody, and I have never failed to have my patients take the advice.

If this simple fact is understood, a great deal of mischief may be prevented by reform of habits and by people going to bed early enough when feeling ill and not uselessly fighting and disregarding nature's warning in the hope that in spite of it the system may get the better of the disease in the struggle for supremacy.

Children ought to be especially protected. The weak alike with the strong are forced to sit hours in a cramped position at a desk, and are punished when unable to furnish sufficient blood for work of the tired brain.

Children and people who go to bed at night early ought to take their main meal in the middle of the day, and a sufficient time for rest ought to be allowed before returning to work. If this is not done it must injure and wear out the strongest organism, not to speak of the weaklings that are forced to follow the same stern rules. Little can be accomplished with tired brains, and it is wasting time and energy of pupils and teachers, causing early breakdown, nervousness, and disease, to adopt such a routine. In fact, it amounts to a crime toward the young, who are supposed to be benefited by the system.

The child who is unable to follow and to concentrate his thoughts, the weakling who needs rest most, is called lazy, and in the way of punishment is kept in, the hours of work lengthened, and the tired brain forced to do further work by memorizing or copying some useless verse or words. School hours ought not to be long for children, and at noon interrupted by a pause of several hours, allowing sufficient time for dinner, rest, and recreation, if afternoon hours are found necessary at all.

A difference between the strong and the weak ought to be made, and the defect of the weaker ought to be given greater consideration than is now done. In fact, usually those who need less attention are the favored. It is only in recent years that the weak-minded have been separately taught, and the enormous advantage obtained is now well recognized by educators and physicians.

Children waste rapidly without rest, and repair commences and recovery follows when rest is secured. Anything that prevents rest and sleep, may it be pain or worry, excitement, noise, or a simple irritation of the skin, is injurious, and organs

that do not find sufficient rest after activity deteriorate. Disease of every organ is the consequence of insufficient rest.

The brain has to be specially considered; it occupies the most unfavorable position in the upright posture, yet the demand for blood is constant and many forces with simple though complicated contrivances are constantly at work to keep its blood distribution perfect. Muscular tone and heart force are the most important factors, and muscular contractions, exercise, cause the blood to return to the heart from the lower portions of the body and thereby assist to keep up a perfect circulation in the upper part. If the tone of the skeletal muscles and that of the vessels be suddenly inhibited by fear or temporarily destroyed by shock, the blood will drop, owing to its weight, into the dilated and supported vesvels of the most dependent parts of the body. The flow of blood through the brain will under these conditions cease—that is, so long as the body is in the erect posture. To restore a fainting person, the head must be lowered. It is not the volume of blood but the velocity of flow that is altered in the brain by changes in the general circulation.

Posture influences blood-pressure but little; the circulation has to be kept practically the same in any position, and that is done by blood-pressure.

When in the recumbent posture far less work is required to keep the blood-pressure normal, and when assuming this position the blood-pressure sinks a little, and as pointed out before rises again toward morning; when waste has been removed from the blood and repair has been made, tone returns to muscles and heart and the rise follows. Similar to body temperature, the average blood-pressure remains always the same, though gradually rising with advancing years. Its daily fluctuations, however, are far greater than those of body temperature.

The circulation of the brain seems to depend entirely upon general blood-pressure, which would explain the rise when the higher faculties are engaged. Excitement, active mental work, and worry increase it considerably. In practice such variations may be noticed in nervous subjects when the blood-pressure is measured at the beginning of the examination and controlled at the end. A variation of several mm. mercury is often found.

The fine and complicated mechanism to regulate blood-pressure is mainly located in the splanchnic area. The capacity of the abdominal vessels is so large that they are capable of receiving all the blood of the body, and a man may bleed himself to death in his own vessels. The splanchnic nerves supplying this vast area are easily influenced by any cause acting upon the skin and every sensory organ, and will cause prompt dilatation of the vessels, when blood-pressure rises to a dangerous point. The skin with its vast supply of vessels is another important factor in regulating blood-pressure, and its close connection with the splanchnic area draws the blood from one large reservoir into the other upon instant demand.

PROLAPSE OF THE RECTUM.

Moschcowitz (*New York State Journal of Medicine,* November, 1912) after an extremely rational explanation of the anatomy of rectal prolapse, suggests a means of cure which he has found entirely efficient. He classes cases as incipient, partial, incomplete, and complete. All the walls of the rectum prolapse only in the very last stage, and even then are drawn down by the anterior wall. The rectal pressure in its early stages is invisible. The patient describes his symptoms as due to hemorrhoids or habitual constipation; or if a physician is consulted, the true nature of the malady is overlooked. The presence of a mass protruding in the rectum is manifestly the cardinal symptom. This is frequently accompanied by a discharge of pus and blood. The patient usually states that the protrusion is of long standing, and that it had ceased growing after it had attained its present dimensions. At first he can reduce it voluntarily by the action of the levator. In the course of time the reduction becomes

positive only by the help of the hand. In neglected cases the prolapse does not stay up even when reduced. On inspection the mass presents the appearance of an inverted cone, hardly ever exceeding a length of 5 to six inches. The protrusion is made up of two cylinders. The surface is covered by mucous membrane, which varies in appearance; it may be normal, or greatly inflamed and thickened, or covered by ulcerations which bleed very readily, or covered by a diphtheric membrane. The mucous membrane of the inner cylinder is normal, or at most slightly hyperemic.

Upon the apex of this protrusion there is an opening, which is directed backward. The anterior half of the protrusion often gives a tympanic note on percussion, because it is usually filled by small intestines; the posterior half is dull on percussion. These symptoms are not present in so-called prolapse of the anus, nor in invaginations.

In a case which has not been operated on before, or otherwise neglected, invagination of the finger between the sphincter and the anterior surface of the prolapse will be halted by a sulcus of the depth of about an inch. In prolapse of the anus there is no such sulcus, because the prolapse begins at the mucocutaneous junction, while in intussusceptions the sulcus is so deep that it can never be reached by the examining finger.

Unless incarcerated the entire prolapse can be reduced, either by the patient contracting the levator ani, or it can be replaced manually. Sometimes gurgling is noted when the prolapse is being reduced, on account of the small intestine contained in the anterior half.

When the prolapse is reduced the rectum imparts a sensation of fulness to the examining finger, because the normal outlines are obliterated, and because of the laxity of the tissues. The anterior surface gives as distinct an impulse on coughing as any hernia. If the finger be introduced along the anterior wall it requires but the slightest pressure of the fingers to keep it reduced, no matter how much the patient strains. If the finger is now held against the posterior surface, no amount of pressure exerted will prevent the prolapse from coming down.

The tone of the sphincter ani varies; in some cases its tone is very good, and its voluntary contractions are very readily elicited. In some cases, again, the tone is entirely lost; the fibers are stretched to a maximum, easily permitting the introduction of the entire fist.

After a review of the various operative methods, Moschcowitz describes the one which has given him the best results. This consists in a median abdominal incision, extending from the symphysis pubis to the umbilicus. After opening the abdomen, the patient is placed in an extreme Trendelenburg position. The rectum is pulled up and held taut, and in the female Pagenstecher silk sutures are passed circularly around the cul-de-sac of Douglas and tied. The lowermost suture is placed about one inch above the inferior extremity of the cul-de-sac; similar sutures, six to eight in number, are passed at intervals and persisted in as long as the peritoneum comes together, until practically the entire pouch of Douglas is obliterated.

It is advisable to include in the suture the pelvic fascia, particularly that part which covers the levator ani.

When the sutures reach the region of the supravaginal portion of the cervix and body of the uterus, they are anchored to these structures.

When approaching the rectum, the sutures coming from the sides of the pelvis catch the serosa in firm and close stitches. This is done in order to prevent the possible formation of a hernia. In addition these lateral sutures often materially aid in fixing the rectum to the sacrum and coccyx.

The ureters and internal iliac vessels should be avoided. The former can be marked by introducing ureteral catheters; the pulsation of the latter can be felt. In older women the uterus is stitched to the anterior abdominal wall. As to after-treatment, the patient is neither constipated nor are the bowels unduly moved. The first passage usually occurs in a week. Usually catheterization is required.

EDITORIAL.

PROTECTIVE MEASURES IN SCARLET FEVER.

It is interesting to note the marked change which is taking place in the opinion of those who see much of scarlet fever concerning its infectious nature, with particular reference to the stage of desquamation. During the last few years a number of important papers have appeared, in which doubts have been thrown upon the infectious nature of the desquamated skin, and it will be recalled that Cagill in the last edition of Allbutt's System of Medicine seriously questions the infectiousness of the desquamated epithelium, and expresses the opinion that a six-weeks' isolation for a scarlet fever patient is quite unnecessary, four weeks usually being ample.

In the *British Medical Journal* of August 17, 1912, Phillips, who is the Medical Superintendent of the Stoke Isolation Hospital, expresses the view that with isolation properly carried out, and suitable treatment given in the early stages of the disease, it is quite possible to allow patients out at the end of four weeks. Furthermore, he asserts his belief that the source of infection does not exist in the desquamated cuticle but in the discharges from the throat and nose, and that it is quite possible to turn out patients free from any infection in either of the parts last mentioned. There must be ample ventilation, often amounting to actual open-air treatment. Where open-air treatment was instituted complications arose in only about one and one-half per cent of cases. If the patients are warmly clad he believes that the more time they spend out-of-doors, either winter or summer when the weather is fine, the quicker they will recover.

In the discussion of this paper Rundle expressed the belief that the contagion in scarlet fever was practically always by contact, and stated that he often treated several different kinds of infection in the same ward. He agreed with Phillips as to the use of open-air and stated that he treated scarlet fever as he treated a tuberculous case. In further discussion Day, of Dublin, expressed the belief that in ninety-nine per cent of cases the infection entered by the throat, and that this part of the body is the site of the infection for a considerable period of time. He did not agree with Rundle's view as to the treating of several infections in one ward, but he did believe one nurse could look after several small wards without spreading contagion. It is interesting to note in this connection that the President of the Section before which this debate occurred, namely, A. K. Chalmers, asserted his belief that, in contradiction to the views just quoted, desquamation is a potential factor in the spread of scarlet fever.

THE BEST METHOD OF TREATING CHOREA.

For many years, as every physician knows, arsenic given in ascending doses has been considered the remedy above all others for the cure of chorea. As a rule the doses ultimately reached must be large to produce any effect, and these large doses expose the patient to arsenical neuritis, possibly to renal irritation, and to disturbances of the gastrointestinal tract.

As time goes by it would seem that the profession is placing less confidence in arsenic in this disease, and Burnet and also Koplik have attacked the drug on the ground that it is not particularly efficacious and is liable to do harm. Swift goes so far as to assert that by following the arsenical plan of treatment he has caused three cases of hemorrhage from the stomach, several of renal hemorrhage, and many of severe irritation of the conjunctiva, and Cabot also seems doubtful of the usefulness of arsenic.

As the popularity of arsenic diminishes the availability of the salicylates has been more and more considered, chiefly on the ground that chorea is a rheumatic manifestation or one very closely allied to it, and within the last few years a

number of physicians have reported to various journals and medical societies the good results which have followed the use of full doses of the salicylates in controlling and finally curing the choreic symptoms. Notably amongst these contributions have been those of Sharp, Poynton and Ness, and Lees. The latter, who is well known for his advocacy of enormous doses of salicylates in rheumatism, also advocates their use in this disease. Allan, a Scotch physician, has come to rely largely upon acetyl-salicylic acid and apparently substitutes it entirely for arsenic.

In the *Albany Medical Annals* for November, 1912, Fromm goes over the literature of this subject and reports nine cases. His experience is interesting. He thinks that all treatment in the way of drugs is futile unless rest is insisted upon. His first case began with a severe arthritic attack, and was treated first by sodium salicylate in doses of 10 grains every three hours, apparently without very marked improvement. This was then substituted by aspirin, 10 grains of which were given every three hours. He states that within thirty days all the choreiform movements had disappeared. It would appear therefore that the remedy is not a very prompt one in its effect, and it is noteworthy that 80 grains a day of aspirin to a child of sixteen years is a dose which is large enough to produce in some persons at least very disagreeable symptoms. In still another case which was ushered in with rheumatic arthritis 5 grains of aspirin was given every three hours in association with moderate doses of the syrup of iodide of iron. In this instance marked improvement appeared about the tenth day, and by the end of three weeks all choreiform movements had disappeared. This child was nine years of age. In the fourth case a boy of thirteen, primarily suffering from rheumatic fever, a month later was attacked by chorea. This patient was given 10 grains of sodium salicylate every four hours and instructed to remain in bed from two to three hours each day. But even six weeks after this treatment was instituted there was only "considerable improvement." Later, however, the choreic movements ceased. The facts given in regard to these cases are practically identical with those described in connection with the remaining ones.

Fromm admits that the number of his cases does not justify positive conclusions as to the efficiency of the salicylates in chorea, although in each instance they were rheumatic in type. Nevertheless, he is ready to assert that as the salicylates are practically specific in acute rheumatism, it would seem that we can conservatively say that they are at least useful in the majority of choreic cases, and while chorea is said by many to be a self-limited disease, nevertheless he claims that the salicylates shorten its course materially.

THE DURATION OF ARTIFICIALLY INDUCED IMMUNITY.

One of the most interesting questions which the medical profession has had before it for several years has been, How long does induced immunity against a given infectious disease last? Until recently our methods of investigation were not sufficiently well developed to enable us to obtain reliable information. Almost all our facts were based upon the development of an attack of illness at varying distances of time after the supposed immunity had been induced. Within the last few years thousands of individuals have received so-called vaccine treatment for the prevention of typhoid fever, and this has brought before us once more in an effective way the question which has been more or less debated for so long a period.

In the *Journal of Experimental Medicine* of September 1, 1912, Wollstein has attempted to determine how long a patient who receives typhoid vaccine can be considered immune from an attack of this disease. She found in a series of twenty-four persons so treated that the immune bodies in the blood reached their height within two months after the first inoculation, or one

month after the third inoculation, and then fell rapidly within the next two months. Only nineteen of the cases could be followed longer than this. Eight of these were negative for bactericidins within ten months after inoculation, fifteen were negative after thirteen months, and only one serum reacted at the end of thirteen months. Wollstein well recognizes that these investigations do not justify us in concluding that from the clinical standpoint immunity is conferred for so short a time; indeed, experience would go to prove that it lasts much longer. Certainly when a patient has had typhoid fever, the immunity lasts for many years if not for the rest of life. It would seem, however, that Wollstein is correct in her view that reinoculation with typhoid vaccine is advisable a year after the first inoculation if it is believed that the patient is without doubt exposed to typhoid infection.

THE TREATMENT OF SNAKE BITE BY PERMANGANATE OF POTASH.

The fact that cobra venom becomes innocuous when mixed *in vitro* with permanganate of potassium would lead one to believe that possibly permanganate might exercise a protective influence if injected into the wound made by a poisonous snake and into the surrounding tissues, provided of course that the injection is made before the absorption of the poison in large quantity takes place. An enthusiastic advocate of this method of treatment has been Sir Lauder Brunton, of London, and, largely because of his interest in the matter, syringes charged with a solution of permanganate of potassium have been widely distributed throughout India in order that the injection might be given at once when the injury was received. As the investigations of Weir-Mitchell and Reichert in this country proved that the permanganate had a distinctly destructive influence upon the venom of the rattlesnake, this method of treating rattlesnake poisoning was widely indorsed.

The method seems to be once more put in a condition of doubt by a paper which is contributed to the *Indian Medical Gazette* of Calcutta for October, 1912, in which the Surgeon-General of the Indian Medical Service, Mr. Bannerman, carried out certain investigations concerning its efficiency, which investigations apparently have the indorsement of Sir C. P. Lukis, Director-General of the Indian Medical Service. These investigations were undertaken in consequence of representations made by Sir Lauder Brunton to the government of India concerning the use of permanganate of potash in snake bite. The result of Bannermann's studies may be summed up in the following language: "If the venom is placed under the skin and the permanganate is applied in powder or injected it seems to be of some little use, but if, as in the case of true snake bite, the poison is placed well below the skin into the loose fascia permanganate seems to be of no value whatever; and if pure permanganate powder is rubbed into the wound it frequently causes severe sloughing. If the patient is seen soon after the poison is injected by means of a hypodermic syringe and then the part is treated by free incision and rubbed with the powder of permanganate the method seems to have some value, but under ordinary conditions, when the poison is deposited not by means of the hypodermic needle but by the fangs of the snake, it seems to be of no use whatever."

It is interesting in this connection to note, however, that the same issue of the *Indian Medical Gazette* quotes Campbell of the Indian Medical Service as being somewhat favorable to this method, in his Annual Report on Medical Matters in Assam. In 14 cases of snake bite, of which 12 patients were males and 2 females, and varying in age from forty to fifty years, the snakes varying in kind and in size, only one died, all 14 receiving the permanganate injection treatment. It is only fair to note, however, that in seven cases the snakes were probably non-poisonous, and in three instances were considered only slightly poisonous. Campbell's observation as to the value of per-

manganate in cobra bite seems to support Bannermann's view, for although two ligatures were applied within three minutes and treatment by permanganate of potassium begun within ten minutes after the bite of a cobra death occurred.

LITHOLAPAXY.

This is an operation so little practiced at the present day that those skilled in it are few and far between, while to the student it remains but a name; none the less it has a distinct place in surgery, one justified by a low mortality, a prompt convalescence, and as a rule a complete cure of the condition for which it was devised. Its disadvantages are that it requires a somewhat elaborate armamentarium, which is not only expensive and easily put out of order, but also calls for special manual training in its safe and efficient application.

In these days of comparatively safe cutting and prompt healing, the removal of a stone from the bladder by either perineal or suprapubic cystotomy is a matter accomplished so swiftly and easily by means of the instruments customarily found in a surgical clinic that the older operation of crushing and washing out at one sitting no longer appeals.

Arthur T. Cabot (*Journal of the American Medical Association,* Nov. 30, 1912), one of the few largely practiced and extremely expert in the use of the lithotrite and evacuator, makes his plea after an extensive experience at both the cutting and the crushing and washing operations. He states without qualification that he believes litholapaxy is the operation of choice in all uncomplicated cases of stone, and quotes in support of this view the opinions of Guyon, Freyer, Keegan, Keyes, and others. He further quotes the mortality of litholapaxy as varying from 1.6 to 6 per cent, as opposed to the suprapubic operation, which gives a mortality of 10 to 20 per cent. In his own experience of 219 cases of stone removal there has been more tendency to recurrence after suprapubic cystotomy than after litholapaxy.

Cabot holds that the skill required in the use of the lithotrite is no greater than that needed in an ordinary cystoscopy, and that no surgeon is competent to undertake bladder surgery who is not competent to use a cystoscope. He further maintains that litholapaxy in inexperienced hands is less dangerous to life than suprapubic cystotomy in the hands of an experienced surgeon, because the intrinsic danger of the operation is much less. The combination of a cystoscope with an evacuating lithotrite is a final refinement to facilitate the search for a last fragment.

In contrast to Cabot's opinion, Lower *(ibid.)* is convinced that until a practical observing lithotrite is invented which will give the operator an opportunity of seeing the field of operation, suprapubic operation for stone must remain the operation of choice for the majority of operators. He quotes from the records of the Lakeside Hospital, Cleveland, for the ten years from 1900 to 1910, showing 46 operations for vesical calculi; 38 were done suprapubically, 7 were litholapaxies, and one was removal of the stone by dilatation of the urethra. Four deaths occurred in the suprapubic cases, all four being complicated cases. The mortality of the suprapubic operations was 10.5 per cent. One death occurred in the litholapaxies, that of a boy of twelve, who died from lesions of the bladder, giving a mortality in this small number of cases of 14.28 per cent.

The objection urged against suprapubic cystotomy in regard to prolonged convalescence no longer holds, since if the bladder be properly closed a week or ten days is all the time necessary for a complete cure. There will be 90 per cent of primary unions in these closures.

As to the technique, the cut edges of the bladder should not be grasped with crushing forceps. The edges should be carefully approximated while the wound is on the stretch so that the stitches will not separate

when the bladder is distended with urine. The ligature must be absorbable.

Lower's personal experience is with 53 suprapubic operations for stone in 49 cases, with no deaths and three recurrences. In the great majority of these the immediate closure of the bladder by suture held.

In deciding for one operation or the other the surgeon should imagine that he is himself the patient. If he has had clinical experience with both methods there is little doubt but that given an uncomplicated case of vesical calculus he would unhesitatingly choose for himself litholapaxy.

THE SEROTHERAPY OF TETANUS.

To many who have carefully followed the clinical records of tetanus treated by serum, the efficacy of this method still remains to be proven. With almost no exceptions the recoveries reported are such as occur under almost any form of treatment—*i.e.*, in those exhibiting a long period of incubation. The prophylactic action of the injection shortly following an infected wound seems so well demonstrated that it is now generally adopted as a routine practice in most clinics and dispensaries, and the results seem to justify this procedure.

Comparatively recent experiments have shown that injections of pure cultures of tetanus bacillus show no tendency to produce the disease, but that the toxin is best elaborated and most thoroughly produces its lethal effect when the tetanus bacillus works in conjunction with the usual pyogenic organisms. From which it follows that even in the absence of serum injections the prompt, careful, and complete cleansing of a wound constitutes perhaps the surest means of avoiding tetanic intoxication.

Von Graff (*Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie,* tome xxv, fasc. 1, 1912) has made a careful laboratory study which clearly seems to show that if the serum be given intravenously it is far more efficacious than by any other method of application. Not only is the prophylactic injection efficient, but even after the disease has developed there is experimental evidence to show that the serum administered in this way may be helpful if not curative. Of four animals which had had an intramuscular injection of the toxin, the serum not having been injected till the development of tetanic symptoms, two recovered. Even when the toxin was injected into the nerves the serum driven into the veins either before or after the toxin injection inhibited the development of tetanus. When the intravenous injection was made some sixteen hours after the intraneural one of toxin it retarded the appearance of clinical manifestations, and in two cases was followed by cure.

These intravenous injections, at least in laboratory experiments, were much more efficacious than those driven into the muscles. Simon is quoted to the effect that of six cases of severe tetanus, all treated by intravenous injections, four recovered. Von Graff injected one patient with pronounced tetanus with 15 Cc. of serum and noted a distinct betterment of all the symptoms. The patient died, however, of an intercurrent pneumonia. The need of large doses is strongly accentuated.

In view of the usual failure of intraneural, subdural, and intramuscular injections of the tetanic antitoxin the simple technique implied by intravenous injection appears well worthy of trial.

REPORTS ON THERAPEUTIC PROGRESS.

PITUITRIN AS AN OXYTOCIC.

In *Le Scalpel* of December 8, 1912, CLAVIER writes fully on this topic, reporting several cases. Thus:

Case 1.—Madame L., aged twenty-two, primipara. Last period July 4, 1911. Pregnancy normal. Travail began April 12, 1912, at 5 P.M. Woman suffered greatly all through the night. April 13, examination revealed the cervix effaced, completely dilated, the anterior lobe alone being accessible; the summit further up was badly flexed. No contractions. Patient much exhausted. Pituitrin injection. At 12.20 labor pains began again with violent contractions; woman greatly agitated. Right episiotomy. At 1.15, spontaneous expulsion of a boy; fifteen minutes after the expulsion of the fetus, normal delivery of placenta. Child-bed progress normal. In this case the principal fault lay in the absence of contraction during the expulsion period. This is one of the most frequent indications for the use of the forceps, and likewise that in which the administration of pituitrin is most clearly indicated and the results most appreciable. This procedure should attract the attention of accoucheurs, if for no other reason than that it presents none of the inconveniences of an obstetrical operation, such as is experienced by the use of the forceps, for example. In this, his first case, he saw what Hofbauer justly terms a "tempest of contractions."

Case 2.—Madame T., thirty-three years, secondipara. Labor began at full term, February 7, 1912, at 11 P.M. At 8.05 A.M. spontaneous rupture of the bag of waters. The midwife recognized an impacted breech presentation, not noticed before. The cervix was dilated to about the size of a silver dollar. At 7 o'clock, when he first saw the woman, dilatation had not progressed at all. During the examination not the slightest contractions were noticeable. Pituitrin injection. At 7.25 he noticed the return of labor pains—these were, so to say, subintrant; at 8 o'clock the breech presented and was easily disengaged. A girl, weighing about 3 kg., was delivered at 8.20. Progress normal.

Obstetricians have always considered a breech presentation as unfavorable, requiring the most delicate treatment when the breech is fixed, even if not so much attached but that the fingers can reach the anterior groin. Thus, Pinard has suggested the prophylactic depression of the anterior feet when possible—that is, when the breech is not too much fixed. For such cases in which the feet cannot be depressed and when interference is imperative, various instruments, unfortunately for the child, have been used, and these instruments are responsible for lesions of the soft parts and fractures of the femur, etc. This fact has led Fabre to say that the crochets should never be used except on a dead child. The advantage of pituitrin in such circumstances is easily seen. It was the first time that he tried the drug, and he was astonished at the action.

Case 3.—Madame M., multipara. Slight laryngeal tubercular affection. Incessant vomiting and fever. General condition precarious. Five months pregnant. In agreement with Drs. Breyre and Reuleaux, it was decided to interrupt the pregnancy.

May 15, dilatation of the cervix with a Hégar bougie, followed by tamponment of the inferior segment and the cervical cavity with sterilized gauze soaked in glycerin. May 15 and 16, no pains; 17th, introduced a ballon de Champetier at 9 A.M. Noon, no contractions. At their suggestion Dr. Reuleaux made an injection of pituitrin. Shortly after travail began, and at 1.15 the fetus was expelled. Progress normal, as far as the genitals were concerned.

Attention is called to the extreme rapidity with which this premature accouchement was accomplished a short time after the injection of the pituitrin, and at a period so far removed from full term. Some may say that the manipulation, tamponment, and

introduction of the balloon contributed in a measure to this end, but not the slightest contractions were produced by these measures. The merit of pituitrin in all cases is to hasten an otherwise prolonged and tedious process. Certain authors admit that the drug is less effective when the accouchement is so far removed from term. The above as well as the following instance merit consideration in this respect.

Case 4.—Madame D., aged twenty-nine, secondipara. Last period November 12, 1911. April 30, began to lose blood. Rest in bed was ordered. Hydrastis. May 3, flow abundant, so that the patient had to remain in bed. May 6, the cervix was opened. Along the long and somewhat dilated cervix a small fetal particle (foot) was noticed. Cervicovaginal tamponment with sterile gauze soaked in glycerin. May 7, no contractions, tamponment renewed. May 8, at 4 A.M., serious hemorrhages. The cervix permitted the introduction of the index-finger. Injection of pituitrin. In about fifteen minutes labor began; at 6 o'clock (during the absence of Clavier) the fetus was expelled, followed a few minutes later by the placenta. Some loss of blood, the cause of which could not be determined. Normal recovery.

In this case the usual means for inducing labor were unsuccessful. The moment pituitrin was injected a discharge at once set in. Clavier asserts that prior to his acquaintance with this drug he should not have hesitated to adopt active measures on the third day—forcible dilatation of the cervix, followed by no less forcible extraction of the fetus, and finally digital and instrumental curettage, all of which would no doubt in turn have given rise to more or less pyretic symptoms. He still has the sad recollection of such a forcible extraction of a five months' fetus (in 1910), assisted by a colleague, under most rigorous antiseptic measures, which nevertheless terminated in most grave septic results (suppurative pelvic peritonitis). After waiting three days in vain, after spontaneous rupture of the membrane, they intervened by attempting to induce labor by the use of laminal stem. A morning temperature of 37.8° decided them to hasten the deliverance.

Case 5.—Madame S., aged twenty-three, primipara, very stout. Operated for a cold appendicitis October 23, 1911. Last period November 9, 1911. Beginning of labor August 19, 1912, at 9 P.M. August 20, 10 A.M., a few feeble contractions at long intervals; at 4 P.M., little progress, cervix dilated to about the size of a fifty-cent piece, bag of waters intact. Breech presentation. Injection of pituitrin. At 5 P.M, labor pains more violent. Spontaneous rupture of water; at 7 P.M., patient, who was very nervous and at the end of her strength, begged for the application of forceps. By this time the cervix was completely dilated, and free at the summit. This mode of presentation, as well as the desire on Clavier's part to end the long wait —for he had been with the woman since 10 A.M.—induced him to intervene, and he is congratulating himself on having resorted to pituitrin. He agrees with A. Ross, who says: "We here have a preparation *which saves the patient as well as the accoucheur long hours of waiting.*"

Using chloroform anesthesia, which he entrusted to a most prudent and careful colleague, he made an internal version, introducing the entire left hand first on the summit of the right side, and after crossing taking the fronto-mastoidien. Incidentally, he states that he considers this mode of procedure less dangerous for the vagina than the "grand tour," when dealing with a posterior presentation in a primipara.

At 7.40 P.M., difficult extraction of a female child, about 3 kg., without perineal lesion. No unusual loss of blood. About 15 grammes of chloroform had been given, when the anesthetist announced that the patient's pulse was gone. In spite of injection of stimulants, ether, caffeine, oil of camphor, this syncope lasted two hours, after which time the pulse finally resumed and stood at 120. Clavier watched the patient until about 6 A.M.; she did not appear to be losing strength, and the retraction of the uterus was complete. The rapid pulse continued during the child-bed period, but

there was never any temperature (maximum 37.2°). The woman nursed her baby. From time to time she gave some evidence of tachycardia, but no signs of heart affection or of Basedow's disease could be detected.

Clavier presents this case in detail because of the fortunate part played by pituitrin in bringing about the uterine dilatation, as well as the syncope which followed the accouchement, which the family attributed to the pituitrin. *But he cannot agree with them,* because pituitrin is a heart hypertonic, and, moreover, the syncope occurred three hours after the injection. He cannot, however, give any definite cause for the prolonged syncope.

The great value of pituitrin can thus be recognized in cases when it is desired to hasten the travail, such as in prolapse of the cord and in placenta previa.

Let us suppose a pregnancy close to term, with hydramnion. The travail has begun, the cervix is dilated to about the size of a silver dollar, the summit is mobile. Rupture of the bag of waters, with rapid discharge of amniotic liquid, produces a prolapse of the cord. The cervix is successfully reduced, the pulse distinctly visible, but in order to avoid a new prolapse it is necessary to fix the head. This is what pituitrin will do.

In placenta previa the question is no less interesting. Numerous publications have recently appeared on the treatment of this grave complication, and it was the order of the day at the Obstetrical and Gynecological Congress in Berlin in September, 1912. The French for the most part adhere to the old so-called obstetrical therapeutic rupture of the membrane (ballooning, or Braxton-Hicks version), while the Germans recommend surgical interference (Cæsarian, vaginal, classical, or extraperitoneal). The French with their procedure show a mortality for the mother of only 8.2 per cent (Coulevaire), and a fetal death-rate of 44 to 60 per cent. They regard their method as a sufficient means of combating hemorrhage, the risk of death from which is small (1.2 per cent).

Haugh and Meyer have studied the value of pituitrin as an ecbolic against hemorrhage, and it is from their work that the following rules are taken, for certain conditions are required for a successful use of the drug:

1. The woman must not be too anemic.
2. Longitudinal presentation of the fetus.
3. There must be no mechanical disproportion.
4. Dilatation of the cervix sufficient to allow a wide rupture of the membrane.

Three failures in seven cases in which the remedy was used is the record, and one of these three was a case in which it was necessary to bring about a premature birth on account of a serious pyelite cyst, and the other two were instances of placenta previa, in which the rupture of the membrane always makes the outcome uncertain. The results are, nevertheless, very encouraging, and it was deemed useful to publish them for the benefit of the practitioner.

The preparation is contraindicated:

1. With regard to the mother, when there is arterial hypertension, for we know that pituitrin increases blood-pressure. This hypertension in a pregnant woman causes what Bar terms eclampsia, and it is better not to use the drug in order to avoid such a contingency.

2. With regard to the fetal presentation, it is clear that the preparation is contraindicated when there is a certainty that the accouchement cannot be accomplished with the force of the uterine contraction above. In a shoulder presentation, for instance, it would be a serious mistake to use pituitrin without a previous podalic version, but there is no danger after the version is accomplished if one wishes to avoid a too violent traction, which is a good practice.

When the child is large, and one wishes to determine a stricture (anteroposterior diameter 7½ per cent), a more adequate procedure is required, such as classic Cæsarian, pubiotomy, etc., or in the case of a dead child, craniotomy.

3. As far as the age of pregnancy is concerned, the action is doubtful in producing an abortion or merely a premature birth.

Outside of these restrictions, pituitrin is superior to the methods hitherto employed to induce or accelerate labor, whether mechanical, such as abdominal function, or warm vaginal injections, etc., or medical, such as lactose, sulphate of quinine, and ergot, happily now abandoned for this purpose.

Clavier heartily recommends his colleagues to profit by the marvelous action of pituitrin.

THE CHANGES IN ORGANS IN A PATIENT DYING AFTER SALVARSAN.

RUH having studied this subject reports his conclusions as follows in the *Cleveland Medical Journal* for September, 1912:

1. In a case having a positive Wassermann reaction and clinical signs of lues, after the intravenous injection of 0.5 gramme of salvarsan in alkaline solution there followed an anuria which resulted in death after five days.

2. At autopsy there were found evidences of a severe intoxication.

3. The main effects are seen in the kidney and liver, which show degenerative changes and proliferation of the parenchymatous elements.

4. The pathological changes in the liver and kidney are similar to those produced in experimental arsenic poisoning.

ANGIONEUROTIC ERUPTION DUE TO ASPIRIN.

ANDERSON reports in the *Canadian Practitioner* for September, 1912, two cases of this character.

Aspirin (acetyl-salicylic acid) has come into common use as an antirheumatic, antipyretic, and antineuralgic, owing to its supposed freedom from the unpleasant effects often associated with other preparations of salicylic acid; and while in general Anderson's experience with it has been satisfactory, yet the two cases which he reports show that at times unpleasant if not dangerous symptoms may attend its exhibition, even in very moderate doses.

The first case was that of an artist—a lady about forty years of age. She had suffered from acne rosacea, with slight digestive disturbance and constipation, but otherwise was quite healthy. She has exhibited a peculiar susceptibility to many drugs—such as quinine, atropine, morphine, etc.—so much so that he has never prescribed anything for her when it could be avoided. She contracted a mild attack of influenza, with slight fever, malaise, and pains. Bearing her drug idiosyncrasy in mind, he prescribed aspirin in unusually small doses—five grains. A short time after taking the first dose her husband telephoned that she was very nervous, pulse was rapid, and that she felt very weak. Knowing her apprehensiveness with regard to drugs, he attributed the condition to nervousness and told him to repeat the dose in four hours. Following the second dose the patient's face and lips swelled up, with at the same time irregular swellings of the type of an angioneurotic edema over the extremities. The drug was discontinued, and the symptoms disappeared within the next twenty-four hours.

The second case was that of a lady about thirty-five years of age. She is strong, bright, and active, of nervous temperament, the mother of two healthy children. Owing to worries incident to sickness and death in the family, she had developed nervous exhaustion with its attendant insomnia, emotionalism, frontal and occipital headache, and a marked degree of fairly generalized pruritus with some secondary dermatitis. An urticaria factitia could be readily produced.

In consulting him she warned him of her sensitiveness to aspirin. Without her knowledge, however, he prescribed it in 5-grain doses in association with phenalgin and caffeine. This was promptly followed by the most marked generalized urticarial eruption which he had ever seen. The itching was intense, the lips swollen, and the face so swollen as to close the eyes. The cutaneous manifestations were accompanied by marked general depression, nervousness, and discomfort. She immediately recognized an effect similar to that of

aspirin when taken on previous occasions. The drug was promptly discontinued, and the eruption gradually cleared up within a couple of days.

The fact that no mention is made of such toxic effect of aspirin by Stelwagon or Sequeira in their recent text-books on dermatology is evidence that the condition described is not a common one. Periodical literature, however, especially German, contains numerous references. Thus urticarial, scarlatiniform, and pemphigus-like rashes, swelling of the eyelids and lips, edema of the skin of the head, face, and neck, as well as swelling of the mucous membranes of the throat and mouth, have been reported by Hirschberg, Wincklemann, Meyer, Freund, Dockray, and others. The results mentioned have frequently followed small doses, 7½ grains or under—*i.e.*, about one-half or less than the usual maximum dose, although larger quantities, 20 to 30 grains, are not uncommonly prescribed in the Vienna clinics.

THE TREATMENT OF LOCOMOTOR ATAXIA.

HUNT in the *American Journal of the Medical Sciences* for September, 1912, writing chiefly of the complications of locomotor ataxia, admits that the treatment for the optic neuritis and for optic nerve atrophy has so far proved unavailing. Strychnine in daily doses may delay the atrophy. Mercury should be dropped.

The joint deformities are difficult to treat. Mechanical appliances sometimes aid, but even amputation may have to be considered. These joint complications, however, do best if let alone.

The crises which occur in tabes are varied and numerous. Contrary to general opinion, they are of unusual occurrence, as one meets with a crisis in only about 6 per cent of the cases. They are best classified in accordance with the several viscera. The most important for the therapeutist and the one which is most commonly encountered is the gastric crisis.

The treatment of the gastric crisis is either medical or surgical. Medical treatment is the least radical and the most practical. The most serviceable drugs are cerium oxalate in 5-grain doses every half-hour, minute doses of strychnine, antipyrin in frequent and small doses, chloral hydrate, cannabis indica, and some of the alkaloids of opium, as codeine and dionin. Opium itself can be administered, first in the form of suppositories, and later hypodermically. Methylene blue in one-grain doses has been tried. Oppenheim speaks of injections of cocaine into the epidural and subarachnoid spaces of the spinal canal. Levy and Pope have added to these injections alcohol and stovaine. Simple lumbar puncture has been done with scant results. These latter methods are, however, far too radical and far too impractical to warrant serious consideration in every-day practice. A patient who is subject to gastric crises should have a series of simple and harmless remedies, which he can use when the crisis occurs. If after repeated attempts there is no abatement, hypodermics of morphine are indicated and should unhesitatingly be given. The hypodermic of morphine should only be given when all reasonable remedies have failed and when the patient has reached a point where decided inroads are being made upon his reserve strength and vitality. This means that every effort should be put forth between the attacks to build up the patient and to feed him so that he will be prepared and ready to withstand an attack of vomiting. It is this intercurrent treatment which is the key-note of the treatment of the gastric crisis.

The surgical treatment, which consists of dividing the posterior nerve roots, has been recently written of and tried by some. Personally Hunt has had no experience with it, and except as a last resort would hardly be inclined to advocate it. A patient with tabes is to his mind not a fit subject for a serious operation, provided that such operation can be avoided.

The laryngeal crises can best be helped by sprays of menthol, and as a last resort cocaine.

The rectal crises can be relieved by sup-

positories and fomentations. The crises of the other viscera have to be met by the administration of many and varied local remedies as well as by opium. In tabes morphine is a powerful but a dangerous aid—one to be used with great judgment, but in supreme moments with no hesitation.

The treatment of the mental condition of the patient is important. The tabetic is peculiarly susceptible to suggestion, and is constantly seeking new remedies and outside aid. His condition is ever before him. He is sensitive, easily depressed, and easily exhilarated. Hope springs eternal—undoubtedly a wise provision of nature, and one which should be encouraged. A change of treatment, a new remedy, a new suggestion, however trivial, will often start one of these unfortunates upon a new lease of life. The physician should bear this in mind and never relax in his efforts to make new suggestions and to stimulate hope.

The treatment of the physical condition of the tabetic is all-important. The disease is characterized by sudden and unexpected crises and exacerbations. Constant efforts should therefore be made to improve the general health and to fortify the strength. A reserve of energy and force is of great value. The degree of anemia, the blood-pressure, and the weight should be closely watched. A tabetic who loses weight is not doing well; a tabetic who gains weight is doing well. A simple but nutritious diet helps; one abounding in fats helps more. Cream, butter, bacon, marrow, and oils are indicated. Baths aid, warm baths especially; they serve to quiet these patients, to relieve the pain, and to improve the general nutrition. Carbonic acid baths are of service. Spinal douches, if not too violent, are useful. General tonics—iron, strychnine, and especially arsenic—are from time to time of great value. If much emaciated, cod-liver oil is indicated; and if the stomach is disturbed, nux vomica may be useful. Constant and unremitting attention must be given to the bowels. One of the great horrors of the disease is the obstinate constipation. Laxatives, plenty of fluids, fruits, and enemas must be used.

So far as climate is concerned, the tabetic does better in summer than winter, and therefore in a warm, dry atmosphere. These patients move about with so great difficulty that few if any obtain enough air, a factor which is not sufficiently recognized and one which is of great importance. A change of envirnoment will often prove beneficial. A month spent at Lamalou les Bains in France is very helpful.

Rest is a wonderful aid. Many of these sufferers fail to do well under every condition, but let them spend two or three days in bed and the improvement is remarkable. Rest in bed aids them physically and aids them mentally. Massage is serviceable to them, especially at the beginning. They should be constantly cautioned against physical strains and exhausting effort.

Finally, treatment of tabes is one in which there should be constant supervision. The greatest attention should be devoted to details. Drugs should be used as sparingly as possible. Air, rest, hydrotherapy, and fattening food should be tried, while the physician should adopt a never-failing attitude of hope and encouragement.

PRURITUS AND OTHER ITCHING DISEASES OF THE SKIN.

BUNCH, in the *Practitioner* for September, 1912, well says that for general pruritus almost every drug has at one time or another been employed as an external application; lotions are as a rule the best and the most cleanly. Carbolic acid in lotion form, or a solution of 1 in 1000 perchloride of mercury, will often stop a severe paroxysm of itching, or, if the patient does not object to the color, either of these may be combined with ichthyol or thiol. A lotion which has given Bunch good results is:

℞ Acidi carbolici, f℥j;
Glycerini, f℥ij;
Liq. picis carbonis, ℥j;
Aquæ, q. s. ad f℥viij.

Or the following:

℞ Chloral. hyd., ℥j;
Camphoræ, ℥j;
Spt. coloniensis, f℥j;
Aquæ, q. s. ad f℥viij.

If there are many abrasions, it is better to use a weak solution of cocaine or eucaine in combination with liquor plumbi subacetatis. A paint of methylene blue, 4 grains to the ounce, is sometimes successful, combined with pills containing one grain given night and morning, and although it turns the urine blue, this does not matter if it does not contain sugar. An excellent protective and antipruritic lotion is the following:

℞ Thigenol, ʒj;
Zinci oxidi, ʒj;
Glycerini, fʒij;
Aquæ rosæ, q. s. ad fʒviij.

The thigenol may be replaced by anthrasol, liantral, tumenol, balsam of Peru, or empyroform, but Bunch has found it gives the best results.

Powders are of service if there are many abrasions and some oozing, and they can be made up with eucaine or anesthesin, but they are unsatisfactory if the object is to exclude the air, or to protect the skin from scratching. For such purposes Lassar's paste, made up with lenigallol, is much better, or Unna's zinc glue, or starch bandages, or the following paste:

℞ Paraff. liq., fʒj;
Zinci oxidi,
Thigenol, ää ʒss.

It must be remembered that many patients scratch quite unconsciously during their sleep, and such scratching may undo all the benefit of treatment applied during the day, leaving an inflamed and excoriated surface which takes some time to heal up. This is especially the case in the aged, when the skin is naturally dry and the itching often intense, and in these patients it is often necessary, in addition to protecting the skin, to order hypnotics, suppositories of morphine, or medinal.

In localized pruritus, ointment, sprays, paints, and varnishes have a much larger field of usefulness than in generalized pruritus, and these are usually made up with cocaine, chloroform, aconitine, or carbolic acid. When a localized pruritus proves resistant to such external applications, a rapid application of the actual cautery to the most irritating areas often causes great amelioration of the symptoms. The high-frequency current applied with a glass electrode is occasionally successful; and ionization with thorium nitrate solution has given good results. But if it is desired to employ radioactive methods of treatment, it is, in Bunch's experience, much better to apply radium itself, especially if the area to be treated is small. For larger surfaces, ultraviolet rays or *x*-rays sometimes act like a charm, and Bunch has observed cases which resisted all other treatment cured, at least for a time, by such means. Although a full pastille dose, or even a dose of *x*-rays sufficient to cause an appreciable burn, seems to relieve the pruritic symptoms for a time, the itching usually recurs when the skin heals up, and the same dose has to be administered again after four or six weeks. The final result after several such doses is not, in Bunch's experience, so good as small doses, about one-third pastille dose, given at intervals of a week or ten days, but in the intervals it is well to apply some soothing paste or lotion and to continue this until all the symptoms have been relieved.

Excision of the affected area, if small, may occasionally be necessary, but division of the afferent cutaneous nerves, although sometimes practiced by surgeons, rarely commends itself to dermatologists, on account of the resulting anesthesia and atrophy of the area involved, as well as other possible unfortunate sequelæ.

THE THERAPEUTIC USE OF VACCINES IN TYPHOID FEVER.

Writing in the *American Journal of the Medical Sciences* for September, 1912, CALLISON reaches these conclusions:

1. Vaccine treatment in typhoid fever will reduce the percentage of deaths and lessen the number of relapses.

2. Complications are less frequent in vaccine-treated cases, and the original attack seems to be shortened in some of the cases.

3. To give the best possible results, vaccine treatment should be instituted as early as it is possible to make a diagnosis, before the patient is exhausted and complications intervene.

THE EMPLOYMENT OF SALVARSAN IN INFANTS AND YOUNG CHILDREN.

LA FÉTRA in the *Archives of Pediatrics* for September, 1912, states that while the indirect method of giving salvarsan to the nursing mother is valuable and should be used when the mother is available, the surest method consists in giving the salvarsan to the infant. Both indirect and direct administration should be employed whenever possible.

The intravenous route of administration is the best. Usually it will be found easiest to expose the vein before attempting to insert the needle.

The dosage should be not less than 0.01 gramme per kilogramme of body weight.

Repeated injections and supplemental treatment by mercurials may be necessary.

The Wassermann reaction should be followed for a year.

PITUITARY EXTRACT IN INERTIA UTERI.

In the *American Journal of Obstetrics* for September, 1912, HUMPSTONE reports on pituitrin. As to its effects on the uterus, he says that in early pregnancy it would seem that little need be feared from the pernicious use of pituitrin *per se* as an abortifacient. In the early months of pregnancy it will cause uterine contractions, but no expulsion of the contents of the uterus. This observation is in accord with others. As an example, Humpstone cites from his own experience the case of a woman with absolute indication for Cæsarian section who had one child by the abdominal route, and who declined to assume the responsibility for a second delivery, pregnant two months. Pituitrin was injected in an attempt to induce abortion in full dosage, 4 Cc. repeated three times on three successive days, without any effect to cause the expulsion of the contents of the uterus.

For the induction of labor during the middle period of pregnancy few statistics are available of the use of pituitrin *per se*, but its use after the introduction of a bag seems to show that it hastens the dilatation materially. In cases which have gone to full term, or over time, some reporters have had success, but this is not in accord with Humpstone's experience. In ten women of this class he made three repeated injections of 4 Cc. pituitrin, three days in succession, and in no case did labor come on within three days of the last injection.

The early part of the first stage of labor, before shortening, and when at least three fingers dilatation are present, is no time, in his judgment, for the use of pituitrin, except where it has been necessary to introduce a bag, or to do a Braxton-Hicks version for placenta previa. In the ordinary case of delayed first stage with nagging pains, quieting efforts and time are far better treatment than pituitrin, but when the cervix has shortened and dilated to three fingers or over and advance with engagement does not occur from simple ineffectiveness of the labor pains, here is one of the times when the effect of this drug is most striking and satisfactory. Within five minutes from the time of the first or second injection the character of the pains is entirely changed. They become much stronger, are of longer duration, are nearer together, and continue for a varying time of about two hours. Humpstone cites one case as an example: A primipara thirty-five years old, stout and flaccid in musculature, had been thirty hours in labor with weak inefficient contractions when he was called in consultation. She was tired, with a dry tongue, and a pulse of 130. The membranes were ruptured six hours (artificially by the doctor in the hope of increasing the efficiency of the pains). The fetal heart was very irritable, flying up to 200 during the contractions. The cervix was well thinned out, three fingers dilated. The head L. O. A., dipping into the brim, manifested no great disproportion—not a very good proposition to one's mind for either mother or child to do an immediate forceps. Pituitrin 4 Cc. was injected into the thigh. In seven minutes the entire picture changed; the pains were lengthened and strengthened, and in one hour she had pushed the head to the pelvic floor for the simplest kind of a

forceps, after manual dilatation of the vulva. This case represents practically the same features observed in eighteen cases with most brilliant results.

In the second stage of labor, when just a little more *vis a tergo* is needed to mold a head through a pelvis or the uterus is tiring from its efforts against a slight degree of disproportion, the results are equally satisfactory to those noted above. His experience has been even more striking when he has employed 1/20 grain of strychnine hypodermically at the same time as the pituitrin, and in such indications as the above this is believed to be the ideal combination. The effect has been more marked in multiparæ than in primiparæ.

In the third stage of labor, when no inertia is present, pituitrin causes an earlier separation and quicker expulsion of the placenta, but Humpstone does not incline to employ it as a routine procedure. Less hemorrhage and better restitution are obtained, he thinks, by the quiescent period of twenty minutes and Credé's method and ergot. When inertia uteri is present and profuse bleeding occurs, pituitrin is illogical alone. It causes intermittent contractions of the uterus. A more tonic pressor is needed, and ergot hypodermically in large doses still has the first claim. However, pituitrin supplies something which ergot does not in stimulating prompt contraction, in most positively and strikingly preventing the shock accompanying postpartum hemorrhage and in aiding the involution of such an atonic uterus. Where pituitrin has been employed earlier in labor with inertia, it is to be remembered that its effect is temporary, and unless it is repeated in the third stage grave hemorrhage may occur.

When pituitrin has been used during the later part of the labor, it has seemed that the involution is more rapid. No case of retention of urine has been observed where pituitrin was used in the labor, but it was not employed to relieve retention, although he was aware of its success as an agent to this end in some hands.

In Cæsarian section it has been exhibited in seven cases, six with complete and brilliant success and once without any effect. Humpstone deems it wise to give ergotole, 30 minims hypodermically, at the beginning of the operation, and does not give the pituitrin until the sutures are placed in the uterus because of an experience in one case in which contraction was so prompt that the sutures in the uterus could not be placed accurately, and later a considerable hemorrhage occurred into the abdomen, beneath the peritoneum over the uterus, forming a hematoma, which was ultimately entirely absorbed.

CARDIAC COMPLICATIONS OF PREGNANCY AND LABOR.

In the *Journal of the American Medical Association* of September 28, 1912, NEWELL asserts that any organic heart lesion, even if perfectly compensated under normal conditions, should arouse apprehension and call for constant watchfulness if pregnancy supervenes.

In case pregnancy comes as a complication when the heart is imperfectly compensated, the uterus should be immediately emptied, since a heart which has failed under the ordinary burdens of life has no chance of sustaining the added burden of pregnancy.

When a heart which has been previously well compensated fails during pregnancy, an attempt must be made to restore compensation by rest and appropriate treatment, but unless the attempt is promptly successful the pregnancy should be ended.

If compensation has failed during one pregnancy, future pregnancies should be absolutely forbidden.

In any case in which an organic heart lesion can be demonstrated, even though it may have caused no symptoms during pregnancy, labor should be regarded with apprehension, and every measure should be taken to shorten the labor and thus relieve the heart of a serious burden, although it may seem to be doing its work perfectly well.

A patient with an organic heart lesion will usually stand an operation well if the operation is performed at a time previous

to a failure in compensation. On the other hand, an operation after failure of compensation will often prove fatal in patients who would have stood operation well at an earlier time.

Any patient known to have an organic heart lesion who is contemplating marriage should be advised of the dangers pertaining to pregnancy and labor, the prognosis in the individual case depending on the nature of the lesion, the age of the patient, and her previous history as regards the efficiency of the heart under normal conditions.

It is impossible to estimate accurately the efficiency of the cardiac muscle in any patient in whom a failure of compensation has once occurred, since although compensation may have been promptly restored under treatment, she may die suddenly before, during, or after labor, without warning.

Labor should be shortened as much as possible in every patient who has a demonstrable heart lesion, although no unfavorable symptoms may have arisen. In primiparas the propriety of a Cæsarian section to relieve the heart of the strain of labor may be very properly considered in any case, particularly if the soft parts are rigid, since it is poor policy to test the endurance of a given heart unnecessarily.

The demonstration of a mitral stenosis should call for the most careful observation. Any sign of failing compensation should be met promptly, and if any condition supervenes which is accompanied by a rise in arterial tension, the pregnancy should be terminated at once.

ACETONURIA AND ETHER ANESTHESIA.

CHALFANT has studied acetonuria in connection with etherization in 750 cases. He reaches these conclusions, which appear in the *Journal of the American Medical Association* of September 14, 1912:

1. Vomiting occurs in a large percentage of cases after anesthesia.

2. The liability to vomiting is increased when acetone is found in the urine.

3. Protracted vomiting is best treated by sodium bicarbonate by bowel and by lavage. These patients need careful watching on account of the liability of acid intoxication.

4. Acetonuria is due to faulty metabolism, and increased by carbohydrate starvation.

5. Acetonuria has no relation to the length of anesthesia.

6. The duration of anesthesia has only a slight influence on vomiting.

PITUITRIN IN OBSTETRICS.

HENGGE, in the *Münchener medicinische Wochenschrift* of December 17, 1912, says that for inducing an abortion he found this drug a complete failure. It is true that in one case there were slight labor pains, but they were without result. In a second case, which had been threatening abortion for two weeks when the patient first came to see Hengge, pituitrin caused regular and at times violent contractions, but the cervical canal remained closed, and the fetus was not expelled until after five injections had been given (in the course of five days), and the placenta had to be removed with the fingers. He saw no formation of a stricture, although he worked without an anesthetic.

In labor Hengge never gave more than two injections. These were always given subcutaneously in the thigh or in the forearm, or in the infraclavicular region. The difficulty of administration and the after-effects of intravenous injections make them unsuitable for private practice. He always waited until spontaneous contractions had been active for some time before giving the injection: in multiparæ when the cervix was dilated to permit the passage of two fingers, and in primiparæ until the dilatation was about the size of a silver dollar.

Such an accouchement presents a peculiar state. At the proper moment the series of injections is begun, first with scopolamine-morphine (0.0004 scopolamine hydrobromidum, or hydrochloridum 0.01 m.); after one hour (if necessary) another injection of scopolamine 0.003+0.01 morphine. Then an injection of hypophysis ex-

tract, which is repeated after fifteen to thirty minutes, if ineffectual, and a third time if necessary. After the completion of the birth and the expulsion of the placenta, preparations of ergot are in order, so as to insure continuous contraction. The amount and the sequence of the injections vary with the exigencies of the case.

Pituitrin is contraindicated when violent contractions are not desirable. Thus, Hengge omitted the drug in a case in which there was a question of version, although it is supposed to be advantageous for such cases.

Hengge's observations lead him to state that the administration of the extracts of hypophysis is of undoubted value in practical obstetrics, especially in combination with "twilight sleep." In the cases he describes in which the drug was indicated prompt action followed with but one exception. The price of the remedy (about 12½ cents per dose) makes it within reach of all. His experience leads him to cite its advantages as follows:

1. The time of accouchement is reduced, a decided advantage, especially for the mother.

2. Both mother and child escape injury, and finally, and above all,

3. When the disproportion between the pelvis and the fetus is moderate, the increased contractions cause the expulsion of the latter, thus simplifying or altogether obviating operative interference, which in such cases is troublesome for the obstetrician and not without danger to both mother and child.

TREATMENT OF SMALLPOX BY TINCTURE OF IODINE.

PEDLEY writes in the *Indian Medical Gazette* for November, 1912, on this topic.

While seldom having the chance of treating a case of smallpox, Pedley had been on the lookout for an opportunity of using iodine, for he felt that its penetration of the thin covering of the vesicles would have the effect of destroying the activity of the microörganisms contained in their lymph.

On the first appearance of the spots he painted them wherever they occurred with equal parts of tincture and liniment of iodine. After three days he changed this to the tincture alone, using it twice a day. The rash was profuse on the face, chest, arms, and hands. The patient found the application of the tincture cooling and grateful, and asked for it to be repeated. It was kept up for six days. The result was remarkable. There was no itching, no discomfort, and no secondary fever whatever; the vesicle collapsed and shriveled; the cuticle peeling off left a clean, white surface, quite free from marks or scars.

While he believes that the course and severity of smallpox may be much modified by keeping down the fever by the thorough and continuous use of cold water, he feels sure that in the application of tincture of iodine we have a most valuable remedy.

ARTERIOSCLEROSIS.

COLEMAN in the *Journal of the American Medical Association* of November 30, 1912, has this to say as to the prevention and treatment of arteriosclerosis:

The widest field for good lies in the prevention rather than in the cure of arteriosclerosis. All causes which we know operate to produce the condition should be curtailed or eliminated as far as possible. There are two parties in this problem—the physician as the educator, and the individual who is willing as far as may be to profit by the advice. The individual should as closely as he can approximate the normal life; and excesses of all kinds, mental as well as physical, should be avoided. The pace that kills and the strenuous life should be shunned. Food should be taken in sufficient quantity, and of a quality calculated to maintain the body in a state of physiological equilibrium; beyond this it is unwise to go constantly or at frequent intervals. Alcohol, coffee, tea, and tobacco should be used moderately, if at all.

The exciting cause must be treated in sufferers from toxic agents in the blood, such as lead-poisoning, diabetes mellitus, syphilis, tuberculosis, gout, rheumatism, and

the acute infections. It goes without saying that the age and general condition of the patient should be considered. What would be moderate in the young would be immoderate in old age; we should not put new wine into old bottles.

The treatment of arteriosclerosis may conveniently be divided into hygienic, dietetic, and medicinal.

Every one requires a certain amount of exercise; the kind and amount should be adjusted to meet the demands of the individual. When active exercise for one reason or another cannot be taken, much good will come from massage properly applied. It quickens the circulation and increases the elimination of waste products. In dilating the vessels of the skin, it to that extent diminishes the work of the heart.

Baths properly administered are of distinct value, including hot baths, hot packs, vapor baths, tepid baths, and carbon dioxide or the so-called Nauheim baths. Cold baths are rarely indicated. All have for their object the increase of blood through the skin, and also excretion by the skin, thereby diminishing the work of the heart and of the kidneys.

The physical and mental activities of the patient must be carefully directed. In some cases curtailment alone is sufficient; in others total abstinence from all work, physical and mental, is imperative. It is frequently surprising to see the good that immediately follows after the patient has made a complete surrender in this direction. Many an old boiler will last for years when run under diminished pressure.

Space does not admit of going into the matter of diet in detail; suffice it to say that the individual capacity will have to be studied in each case. It is a fact that the majority of persons eat too much, and nearly all too rapidly. In mild cases cutting down the diet may be sufficient, eliminating such articles as are apt to overburden the alimentary tract and the kidneys. In general, meat should be indulged in sparingly. The sugars may be borne well by some, but are apt to lead to gastrointestinal fermentation. Milk, variously modified, eggs, fresh vegetables, and fruit are more or less staple articles, as is bread, and may be taken by most patients. In advanced cases a rigidly restricted diet is at all times imperative. In all cases the amount of alcohol, tobacco, tea, and coffee allowed should be moderate, and doubtless the best rule in many cases is "not at all." Since it has been seen, however, that a large degree of sclerosis is present in most persons after middle life, it is not wise or expedient to be extreme in these matters, until our knowledge becomes more exact.

Individual instances often shatter one's theories. Men, in apparently robust health and advanced in age, have throughout their adult lives been hard drinkers, excessive users of tobacco, or immoderate tea and coffee habitués; and yet sclerosis in them is in abeyance. The total abolition of these creature comforts is often unwise, and their regulation must be left to the wisdom of the physician.

As to the use of mercury in syphilis, Coleman asserts he would be willing to run the risk of producing arteriosclerosis by the use of mercury rather than to run the surer risk of having the sclerosis develop from the effects of syphilitic infection. In all luetic cases the iodides are of value; and in many cases which are not luetic their rôle is distinctly good. Their employment may be more or less empirical, but in a large number of cases he believes they tend to hold down tension and discourage sclerotic change.

Nitroglycerin acts quickly and may be employed for a long time without harm, its chief drawback being its evanescence. It rapidly causes dilatation of the peripheral vessels, and if pushed sufficiently far will cause flushing of the face and headache. It not only relieves the overburdened heart, but increases the activity of the kidneys. It may be administered in appropriate cases in doses of from 1/100 to 1/50 grain every two or three hours for long periods without injurious effect. Nitrite of amyl pearls may be broken and inhaled in urgent cases, but are not a substitute for nitroglycerin. The more lasting effects of the nitrites make

them preferable; of these sodium nitrite in 1-grain to 3-grain doses repeated three times a day, or every four hours, may be given.

MELUBRIN IN RHEUMATISM.

SCHRENK, in the *Deutsche Medicinische Wochenschrift*, No. 34, 1912, says in the last few months he has used in the neighborhood of 2500 grammes of melubrin among about sixty patients, without having noticed any disturbing effects. He gave up to 10 grammes daily. The largest doses amounted to, on one occasion, 76 grammes in eight days, and once 88 grammes in fifteen days.

Among the patients treated with melubrin were thirty-one with arthritis, including twenty-four typical cases of polyarthritis rheumatica.

In the therapy of this affection the fact is not yet sufficiently regarded that it is important to procure the highest possible concentration of the remedy in the organism. In order to attain this end he has thus far never given the sodium salicylate in divided doses throughout the day, but has invariably ordered from 5 to 8 grammes to be taken inside of two to four hours. In the same manner melubrin is for the most part given in two- to three-gramme doses at intervals of one hour. If in these doses the result is not sufficient the total dose can be increased to 8 or 10 grammes. The action of melubrin is in general the same as one is accustomed to see in the case of salicylic acid. For the most part the pains subside rapidly, the temperature is lowered, and the swelling and redness of the joints subside in the course of a few days. As a whole the action was perhaps somewhat weaker—that is, in order to obtain the same result one must give somewhat more melubrin than sodium salicylate. In three cases with melubrin alone no defervescence was attained; in a few cases the temperature was lowered, and the joints were found to be normal, but the patients continued to have subjectively some pain, which disappeared after the prescription of salicylic acid. Whether with a little more delay the same result would come about from melubrin alone cannot be decided in this individual case. It is, of course, an every-day experience that after the subsidence of acute symptoms some time may still elapse before the patient is wholly free from pain. In any case he can corroborate the observations of Loening that melubrin succeeds in curing acute articular rheumatism without any aid from salicylic acid. He therefore holds it to be an essential step in advance, for we have unconditional need of a substitute in patients who do not well tolerate salicylic preparations. Several times melubrin was well borne even in large doses in patients who after taking salicylate of soda had complained forthwith of ringing in the ears and a feeling of mental depression. In no case did Schrenk see any albuminuria for which he could make melubrin responsible. In a large proportion of polyarthritis patients there existed simultaneously a mild nephritis, which recovered during the administration of the melubrin.

In two cases of septic polyarthritis in which streptococcus viridans was found in the blood, the new preparation showed a more intensive action than salicylic acid. Corresponding to the nature of the affection the patients did not become freed from fever through melubrin, but there was a visible favorable influence on the temperature and a mitigation of the pain.

The antipyretic action was also tested, principally in tuberculous subjects. It is self-evident that we cannot give here the large doses which are tolerated well in articular rheumatism. This holds good for other antipyretics—for example, aspirin and pyramidon. He gave it in tuberculosis to bring down the temperature, in beginning doses of half a gramme three times daily. If no favorable satisfactory action was obtained in the course of a few days they increased the dose to one gramme three times daily. It is to be considered here that frequently a certain cumulation resulted. If therefore the temperature reduction from melubrin on the first day is not prominent it will with the same dose be much more pronounced on the second day.

THE PITUITARY BODY.

None of the ductless glands has attracted so much attention during the last few years as the pituitary body. Physiologists, pathologists, clinicians, and speculative philosophers have combined to investigate its condition in health and disease, each using his own methods of research, each attaining some measure of success in his conclusions. The amount of work done and the number of observations made have been great; still greater the number and variety of the highly speculative (and useless) theories developed to explain the possible actions of the internal secretion of the pituitary gland; yet the positive advance made in the comprehension of its place in the human economy is small; the number of undisputed facts known about its activity and influence is still smaller. The literature of the subject is enormous, and grows daily. We have before us two books, both excellent in their different styles, in which the slow growth of knowledge about the pituitary gland and the immense difficulties met with in its acquisition are clearly to be traced.

Delille first gives a straightforward account of much of the literature of the subject, the various researches on the actions of pituitary extracts, the conclusions drawn by the various writers; later he gives his own clinical experimental and pathological observations. He concluded—writing three years ago, it must be remembered—that the anterior lobe of the pituitary body was an actively secreting gland, though its extracts appeared to have no physiological action on injection or ingestion, and that the posterior or nervous lobe was devoid of all glandular infection, although its extracts had marked influences upon the heart and blood-vessels, the kidney, metabolism, and bodily growth. His account of the connection between the pituitary gland and acromegaly and gigantism was necessarily far from clear; for it was not at that time apparent that the hyperpituitarism producing giant growth or acromegaly might pass on into a stage of dyspituitarism or hypopituitarism—to use a barbarous but convenient terminology—in the course of time. Delille's clinical experiences led him to conclude that pituitary extract should be given when it was desired to raise the blood-pressure and slow the heart or to procure diuresis; it was particularly indicated in exophthalmic goitre and in cases of hypopituitarism.

Professor Cushing's far more ambitious essay is certainly the most complete and the most valuable contribution to the pathology of the pituitary body that has yet been made, and it defines with the utmost fairness and precision the point to which the physiologist and the pathologist have advanced in the definition of its functions, the recognition and treatment of its disorders. After a brief summary of the anatomy, physiology, pathology, and chemistry of the gland has been given, some two hundred pages are devoted to the detailed and well-illustrated study of forty-seven patients with pituitary disorders, all carefully detailed and discussed by Professor Cushing. About one hundred pages on the incidence, symptomatology, and treatment follow. The posterior or nervous lobe of the gland is described as made up of neuroglial fibers radiating from the infundibulum; in the spaces between the fibers are, sometimes, faintly eosinophile hyaline bodies "which seem to arise either as a form of secretion from the cells of the pars intermedia or as an actual metamorphosis of migrating epithelial cells." Cushing and Goetsch have claimed that the cerebrospinal fluid actually contains a substance with the properties of extracts of the posterior lobe itself. There seems no reason to doubt that the secretion gets into the ventricles through the infundibulum. Entering into the circulation in excess, this secretion produces glycogenolysis and glycosuria; but if its amount is diminished (as in hypopituitarism due to operation or disease) an abnormally high tolerance to sugar may be acquired, with the resultant accumulation of fat. The degree of this acquired tolerance may be of diagnostic utility, and certainly forms a basis for rational treatment with pituitary extract.

Professor Cushing gives a critical analysis

of his cases, a lucid exposition of the considerations that lead to the placing of any one of his patients in the classes of past or present hypo-, dys-, or hyper-pituitarism. His main interest would seem to lie in the clinical surgery of his cases, the indications for operative treatment, and the precise form that operative interference should take. Many of his conclusions are supported by the results of experiments upon dogs and puppies made by himself and his assistants. His remarks upon the connection between the pituitary body and the other ductless glands, hibernation, infantilism, precocious sexual development, diabetes insipidus, and countless other curious or unusual happenings in medicine, are often most interesting, and show a wise restraint in the use of the imaginative faculties that cannot be too warmly recommended to the attention of most of those who busy their pens on the subject of the hypophysis. In style and matter alike the work does the greatest credit to American surgery and experimental physiology. It should become a classic, and may be warmly recommended to all neurologists, surgeons, and clinicians.—*British Medical Journal,* Nov. 16, 1912.

THE MENACE TO THE YOUNG CHILD OF THE COMMON INFECTIOUS COLD.

SOUTHWORTH writes wisely in the *Journal of the American Medical Association* of November 30, 1912, on this topic. As he well says, during the prevalence of colds the possibilities of infection are excellent if the young child travels by train, rides in public conveyances, or is taken to hotels or crowded shops. Numerous regrettable occurrences have been known in which disregard of these dangers has led to serious consequences. One instance, which will suffice, was that of an only child, aged three, previously well, who was brought to the city for the sole purpose of seeing the Christmas display of toys in one of the large shops. This trip was immediately succeeded by coryza, followed by double otitis, double mastoid operation, and finally, sinus thrombosis. The child finally recovered, but paid a large price for a few minutes of unnecessary indulgence.

Children's parties and dancing-schools for the very young come under the same ban. It is indeed an open question whether the greatly increased opportunity for major and minor infections where young children are gathered together in kindergartens does not more than offset the real advantages which they offer. If we exclude exceptional cases in which the discipline or companionship of the home is deficient, Southworth is of the opinion that safeguarding the health of the young child is the more important consideration, and that any home worthy of the name should be able to furnish all the simple instruction and direction of the play instinct which the young child requires.

Assuming that the young child is not subjected to exposure outside the home, there still remains the problem of safeguarding it from infection within the home. Measures which will produce this result are not practicable in the crowded tenement, nor in those ranks of society where limited means and unfavorable environment make it imperative that the baby or other young children be closely identified with the family circle and inhabit the same rooms. Nevertheless, there are an increasing number of households in our land where the infant or young child has, or may have if need be, its own room and its own attendant. In homes where its welfare is considered paramount, and where neither expense nor personal inconvenience would be allowed to stand in the way, protection of the infant can be secured.

The first requisite is a clear understanding by the parent of the direct and indirect dangers from exposure. Isolation and quarantine of the affected adult member of a household is not always feasible unless the attack is sufficiently severe to confine the patient to bed. Even then the period of convalescence usually renders such measures ineffective. On the other hand, isolation and quarantine of the uninfected infant against the family and the majority

of the household, although involving some difficulties, is not impracticable. Indeed, the quarantine of the patient is regularly carried out when circumstances are thought to warrant it, as in diphtheria, scarlet fever, and measles. It is even willingly enforced for mumps and chicken-pox, because the visible brand of these maladies and the traditional dread of such conventional types of infection instantly suggest such measures. Yet neither of these latter two affections produces a fraction of the harm wrought by the infectious colds.

In addition to a recognition of the sinister possibilities of what often seem harmless infections, the isolation of the infant calls more for unselfishness on the part of the parents than for anything else. This means that at such times the parent or parents should be willing, if necessary for the welfare of the child, to sacrifice their own pleasure in seeing it and playing with it. As a principle, this seems simple, but it is often the crux of the difficulty in putting such isolation into practice. It is also extremely difficult to secure the immediate and complete isolation, as a matter of routine, of any child in a family of children, when it first shows slight symptoms of beginning illness, yet by such means Southworth has repeatedly carried young children through house epidemics without their contracting the infection, and thus without interruption of normal growth and well-being.

No discussion of this subject would be complete without mention of the occasional causes of infection, foremost among which is the introduction of the casual visitor into the nursery. Why a coughing or sneezing person should insist on seeing the baby, or the maternal pride of the mother lead her to introduce her child into such an atmosphere in the drawing-room, passes understanding, unless it be ascribed to sheer thoughtlessness on the one hand and untutored ignorance on the other.

It is a comparatively simple matter for the physician to acquaint the mother with the risks incurred, and to issue orders that no employee or member of the family having the slightest cold shall enter the nursery, and that the direct question shall be put to any visitors before they are admitted. With such clear instructions many possibilities are averted, the education of the community is furthered, and the immediate responsibility is lifted from the shoulders of the physician.

It requires at least a decade to secure the acceptance of any new measure by a majority of the medical profession, and another to make it the common knowledge of the laity. There is as yet no text-book that teaches the danger of the common infectious cold, no medical school in which it is impressed on the student, no hospital in which such cases are not retained in the common ward, no health board which has yet dared to limit the right of the individual to spread the infection of his coryza among the public. These may exist unknown to him, Southworth states, and the convictions to which he can lay no claim of priority will in time make themselves felt in these directions.

TREATMENT OF POLIOMYELITIS.

FLEXNER in his Huxley lecture, published in the *Lancet* of November 9, 1912, has this to say as to the treatment of poliomyelitis:

Remote as some of them may seem, the considerations to which he has called our attention have a bearing more or less vital upon the problem of a specific and effective treatment of poliomyelitis.

Poliomyelitis is not a disease with a very high mortality; its chief terror lies in its appalling power to produce deformities. When death does occur it is not the result, as in many infections, of a process of poisoning that robs the patient of strength and consciousness before its imminence, but is caused solely by paralysis of the respiratory function, sometimes with merciful suddenness, but often painful slowness, without in any degree obscuring the consciousness of the suffocating victim until just before the end is reached. No more terrible tragedy can be witnessed.

Flexner deals with certain facts regard-

ing immunity in poliomyelitis in his paper, and it remains to be added that the employment for treatment of the immune serum, taken from monkeys or from human beings, exercises a definite if not very strong protective action upon inoculated monkeys. Either the disease is prevented altogether or its evolution is modified in such a manner as to diminish its severity. When the virus used for inoculation is highly adapted to the monkey, and thus very virulent, it is more difficult to control the result than when it departs less from the original human type and is less active.

The immune serum has thus far acted best when it was injected into the subdural space on several successive days. This is in conformity with the fact that however introduced into the body, the virus establishes itself in communication with the cerebrospinal liquid, where it propagates for a time. After a time the virus localizes in the nervous tissue itself, and becomes accessible not only from this liquid, but probably from the general blood also. The serum introduced into the subdural space soon escapes into the blood; and thus a double action is secured. On the one hand it reaches the nervous tissue directly from the cerebrospinal liquid, and on the other with the blood. An immune horse serum at first gave disappointing results, but latterly its employment by intramuscular injection has given more promise. But none of the sera mentioned can be regarded as having more than touched the fringe of the problem of a cure for the disease.

Such brilliant success has been recently recorded in respect to the specific chemical therapeutics of infection that an effort has been, and still is being, made to attack the problem from this quarter. Here, also, only a starting-point has been secured and the subject merely opened to further experimentation. The point of departure adopted is the drug hexamethylenamine (urotropin), which possesses a degree of antiseptic action in the body and is known to be secreted into the cerebrospinal liquid. When the drug is administered by mouth it can be detected by chemical tests in the liquid in a short time. When inoculation of virus and administration of the drug are begun together and the administration continued for some days afterward, the development of the paralysis is sometimes but not always averted.

Hexamethylenamine lends itself to modifications by the addition of still other antiseptic groups to its molecule. They have tested a large number of such modifications and have found certain ones to exceed the original compound in protective power, and others to promote the onset of paralysis. This is the common story of drugs. None are wholly without some degree of injurious action upon the sensitive and vital organs of the body. But manipulative skill has already succeeded in eliminating the objectionable and improving the valuable features of drugs so that they exert their action but little upon the organs and severely upon the parasites, when they become useful as therapeutic agents. This process may be called sundering the organotropic and parasitotropic effects. Whether this can be successfully accomplished with this class of compounds cannot be predicted. But if not the quest will be transferred to still other drugs. When it is accomplished the victory will be won. By whom will the victory be won, and when?

ORGANIC IODINE PREPARATIONS: THEIR PHARMACOLOGY AND THERAPEUTIC VALUE.

Under this title McLean writes in the *Archives of Internal Medicine* of November 15, 1912. He says that from the evidence presented as to chemical nature, absorption and exercise, distribution, physiologic action and clinical results, the following conclusions may be drawn with regard to the therapeutic uses of the organic iodine compound:

1. Up to the present it has not been shown that the organic iodine preparations, with the exception of preparations of thyroid, have any specific action in pathologic conditions, except of the action of iodine after separation from the molecule.

2. The iodized proteins seem to be of advantage for therapeutic use only in so far as they avoid gastric irritation. The more stable compounds are apparently not entirely split in the body and are therefore not well utilized, while the less stable compounds have no advantages over the alkaline iodides, either as to local effects or as to rapidity of absorption and excretion.

3. The iodized fats and fatty acids appear to have some advantage when the continuous action of small amounts of iodine is desired. They are more slowly and evenly split, and the amount of available iodine in the blood does not vary from time to time to the extent that it does when the alkaline iodides are administered. The use of the iodized fats in such conditions as arteriosclerosis, bronchial asthma, lead-poisoning, etc., probably has some rational basis, therefore, on physiological grounds. These substances are also as a rule non-irritant to the stomach.

4. The difference in frequency of iodism is probably due to the difference in the amount of available iodine present in the body at any one time. When large amounts of iodine are desired, as in cerebrospinal syphilis, avoiding the danger of iodism would be at the sacrifice of therapeutic efficiency.

5. The use of organic iodide preparations with toxic side actions, due to the molecule or its splitting products, should of course be discouraged. The products of iodine with the higher fats and fatty acids are generally free from toxic actions.

HEART-BLOCK.

The *Practitioner* for November, 1912, contains an article by LEA on heart-block. He has this to say as to treatment:

There are many cases in which no treatment is specially indicated. Such cases are the slighter degrees of block, demonstrable only by polygraphic methods, and limited, perhaps, to a mere prolongation of the A-C interval. Such a partial block, however, may be of importance to recognize, in cases in which digitalis is being given. In cases of higher degree of block, not due to organic causes, the exhibition of atropine is often effective in reducing the block. This drug, for its paralyzing action on the vagus, has been extensively tried, and with variable results. It may be said that in all cases it is desirable to try its effects. In some cases it is beneficial; in the cases of complete organic block, however, it has not succeeded in altering the condition, nor does it appear to lessen either the frequency or severity of the syncopal attacks.

Mercury and Potassium Iodide.—In view of the fact that many cases of block are due to gumma of the bundle, the antisyphilitic treatment has been extensively tried. The results are, on the whole, disappointing. Jellinek and Cooper report a case of cure following this treatment. Similar cures are noted by Schmaltz, and by Erlanger. Hirschfelder is of opinion that these drugs should be tried in all cases in which there is a suspicion of lues. Mackenzie mentions that, in a few syphilitic cases, recoveries have been effected by the energetic use of antisyphilitic remedies. Salvarsan has been tried in one instance, without benefit. The latter writer emphasizes the value of avoiding overexertion, and the avoidance of dangerous situations in patients subject to syncopal attacks. The writer has seen a case in which the patient had fractures of both femurs, and a depressed fracture of the skull, all acquired by falls due to such attacks. The danger of exercise in early cases has been exemplified by Prentiss and Schuster's case, and also by Erlanger's.

Digitalis.—This drug, in the majority of cases, is contraindicated, especially when there is incomplete block. In some cases, however, it is of value, especially when there is muscle failure. In a case of Mackenzie's in which there was complete block, associated with edema, the giving of digitalis caused the complete subsidence of the dropsy and improvement of the patient's condition. This writer's opinion is that, when the block is already complete, this drug cannot make it worse, but can improve the patient's condition in some cases. The danger of this drug in conditions of com-

plete block was shown in Neusser's case; on giving digitalis, the pulse, which was at 30, fell to 16, and later the patient died. On the other hand, a case has been reported in which, in a case of block, the pulse lay at 20, 15, and occasionally 12. Digitalis increased the ventricular frequency to 25, and later to 40. This treatment also caused the disappearance of the dropsy.

The effect of carbonic acid baths has been tried in four cases. There was in all improvement in the general condition, and in one case the block was completely removed for three months, but subsequently recurred. In the cases of organic block, due to causes other than syphilitic, it seems that little can be done to alter the condition.

In conclusion, each case must be treated in accordance with the peculiar conditions of the case and the effects of treatment judged individually, since such variety of causes and associated conditions arise as to preclude forming any definite conclusions of general nature, which can apply universally.

THE TREATMENT OF INCIPIENT PULMONARY TUBERCULOSIS.

In the *Lancet* of November 9, 1912, LEES writes on this important topic. He well says that in the minds of the majority of the medical profession the question as to the proper treatment of pulmonary tuberculosis seems to be answered by the one word "sanatorium," to which some are now inclined to add (relying on the confident assertions of its advocates) the word "tuberculin." But with regard to the employment of tuberculin there is still acute controversy as to whether it ought to be used in small or in large doses, whether the grave symptoms which may follow its employment are due to it or to "mixed infection," and whether it ought to be used only when the patient is kept at rest and under skilled supervision, or may be given to patients who are allowed to pursue their ordinary occupations.

It is quite certain that sanatoria have been extremely useful, and that by their help many patients have been restored to health. Yet it must also be sorrowfully confessed that many patients who have lived in a sanatorium for six months, at a very considerable cost, are still not completely cured, and that numerous instances of subsequent relapse occur, so that in the minds of many practitioners there is a growing skepticism as to the curative value of sanatoria. And when we consider the matter carefully we see that though the treatment by absolute rest, abundance of fresh air, and abundance of nutriment places the patient under the most favorable circumstances for fighting his battle with the invading bacilli, it does not include any organized attack on the bacilli themselves. It is the consciousness of this that has led many to desire to make trial of tuberculin.

But is there no simpler and less dangerous method of direct attack? Is it quite certain that ordinary antiseptic drugs are of no value in the treatment of pulmonary tuberculosis? On the contrary, it is quite certain that some cases have markedly improved under the use of large doses of creosote. Of late the value of injections of a preparation of which iodine appears to be the active agent has been prominently advocated in France. And a letter in the *British Medical Journal* from a practitioner who had been using tuberculin and whose supply was exhausted related that he had substituted injections of carbolic acid and had obtained better results. But creosote by the mouth is apt to cause much disturbance of the organs of digestion, while hypodermic injections are apt to be painful, and require the most scrupulous precautions against sepsis.

Lees asks, why not administer these antiseptic drugs by a method of inhalation? Too many physicians reply, "Because we cannot see how such a method can be of service." Some even go so far as to say, "Because it cannot possibly do any good." But is such skepticism justifiable? If a patient inhales a combination of antiseptic vapors persistently, day and night (except when actually taking food), by the principle of diffusion of gases the antiseptics must make their way into the pulmonary alveoli,

if the inhaler be worn for a sufficient length of time. This is surely indisputable. And if antiseptic drugs like creosote, carbolic acid, and iodine are dissolved in alcohol, ether, and chloroform, there must be a gradual absorption of these anesthetic agents into the blood, for this is an A. C. E. mixture, and we know that if used in greater strength it would prove the absorption by producing general anesthesia. The slow absorption of these agents in a very dilute condition must carry with them into the blood the antiseptics dissolved in them. How these may be transformed in the blood it is for physiological chemistry to determine, but it seems likely that some antiseptic influence will thus be carried by the blood-stream to the tuberculous foci, which will then be attacked both from without the lungs and from within.

Certain other properties of this combination of drugs deserve attention. First, with regard to the alcohol, we have learned from the remarkable observations of Professor Collingwood and Dr. W. H. Willcox how much the stimulating and tonic effect of oxygen given by inhalation is increased by passing the oxygen through absolute alcohol. Dr. Willcox has calculated the amount of alcohol absorbed and finds it to be very small, yet it exercises a most remarkable influence, as has subsequently been proved by administering oxygen bubbled through alcohol in cases of cardiac failure. The effect of the continuous inhalation of an antiseptic mixture in which alcohol is the solvent must therefore be a tonic and stimulating influence constantly at work. Another constituent of the mixture, ether, will act similarly and perhaps more strongly. Lastly, chloroform has a local sedative influence and strongly tends to diminish cough. Lees therefore recommends, and has constantly employed, the following formula for a solution to be used for continuous antiseptic inhalation:

℞ Creosoti, f3ij;
Acidi carbolici, f3ij;
Tinct. iodi, f3j;
Sp. ætheris, f3j;
Sp. chloroformi, f3ij.

Menthol and formalin appear to be too irritating, and unsuitable for continuous inhalation.

Whether Lees's argument from theoretical considerations does or does not produce conviction in the mind of the reader, the final appeal must be to the results of experience. If the results of experience can be shown to be satisfactory, theoretical objections will soon be swept away. For it must always be remembered that however fascinating a scientific or apparently scientific basis for treatment may be, our most trusted remedies are the product of empirical observations. Quinine, opium, digitalis, mercury, and sodium salicylate are triumphs of empiricism. Medicine is both a science and an art; both must be cultivated with equal care and accuracy. For the art to ignore the science is stupid; for the science to neglect the art is suicidal. The medical science which has any real claim to the name cannot be confined to the laboratory and its products; it must be constantly in touch with an ever-increasing accuracy of clinical investigation. The results of treatment which claims to be "scientific" must be tested, not simply by the assertion of the patient that he is "better" (have we not all heard of the spes phthisica?), but by diminution of pyrexia, of cough, and of sputum, by increase in weight, and by careful observation and record of the physical signs. Lees therefore asks our careful consideration of the results recorded in the table of 70 cases treated with the formula above stated, which have been already published in the medical journals. The most recent of these cases ceased treatment a year ago. The table shows in each case: (1) the gain in weight during the first three weeks; (2) the total gain in weight; (3) the effect on the cough; (4) the effect on the sputum; (5) the effect on the physical signs; and (6) the result as to permanent capacity for work. The present condition of each case in October, 1912, with very few exceptions, has been ascertained by letters directed to the patient or to the medical man who sent him. The answers have been pleasant reading; for they have shown the most satisfac-

tory results in nearly all cases, and they have been full of gratitude. Out of the 70 cases published there are:

Complete recoveries		48
Probably complete recoveries		3—51
Cases incompletely cured		10
Final result not known		2
Died		7—19
Total		70

Of the 10 incompletely cured, nine have improved remarkably; one has deteriorated. Of the seven deaths, one was due to apoplexy after recovery from the lung disease, one was hopeless when first seen, two abandoned treatment, one died from hemoptysis, one from abdominal tuberculosis, and one from tuberculous meningitis.

THE INUNCTION TREATMENT OF MEASLES.

CONNOLLY in the *Practitioner* for November, 1912, gives his experience in the following summary and conclusions:

The general trend of opinion among the medical profession toward the use of eucalyptus inunctions in the treatment of infectious diseases—chiefly scarlet fever and measles—may be said to be of a non-committal character. Dr. Goodall, indeed, can see little if any value in the method. The chief exponent and upholder of the claims of eucalyptus inunction is Dr. Milne, who seems to have little, if any, doubt as to its great value both in curing and in preventing scarlet fever.

At the last meeting of the British Medical Association, in the section of State Medicine, a discussion on isolation in scarlet fever was opened by Dr. C. H. Philips, Medical Superintendent of the Stoke Isolation Hospital. He advocated segregation and classification of each patient, and urged more outdoor treatment of scarlatina when no complications existed. Dr. J. M. Day, Medical Superintendent, City of Dublin Fever Hospital, entirely agreed with the latter suggestion. The discussion, in which the president of the section (Dr. Chalmers) joined, emphasized the importance and usefulness of isolation hospitals, as opposed to home isolation of infectious disease, having due regard to complete asepsis. Dr. Rundle stated that, in his opinion, Dr. Milne's home treatment of scarlet fever by inunction and throat swabbing was now discredited.

Connolly's observations and clinical trials have been made with a view to showing what value, if any, can be attributed to eucalyptus inunctions and antiseptic treatment of the mouth and throat in the treatment of measles. He has already pointed out the nature of the clinical material dealt with. The children were not taken from the healthy, well-to-do classes, in whom, as a rule, the mortality from measles is low, but from the poorest classes of the community, who are prone to all kinds of infection, and have poor resisting powers to the inroads of disease. That this is the case is shown by the large percentage of, often serious, complications. Further, except in those cases arising in the hospital, they did not get the children in the very early stage —*i.e.*, the preëruptive stage. Often indeed they were already attacked with bronchopneumonia.

But there is one point on which he would lay special emphasis, and that is the need for careful and constant nursing, and for maintaining in the ward an even temperature of about 65° F. In this respect they were fortunate in possessing a trustworthy and capable nursing staff. Taking all these things into consideration, it seems that a decided value must be placed upon the eucalyptus inunction method of treating measles, not forgetting, of course, the antiseptic treatment of the mouth and throat. Comparing the case mortality rate in his cases with that obtaining in the twelve months previous to the commencement of inunction methods, it is seen that the former rate (5 per cent) is less than half the case mortality rate of the previous twelve months (11 per cent). Connolly does not wish to minimize the importance of the effect of other treatment carried on—*e.g.*, in bronchopneumonia the use of a steam tent, the inhalation of oxygen passed through alcohol, or the giving of oxygen subcutaneously, etc. These measures must certainly be taken

into account. But it is also reasonable to suppose that these same measures were not neglected before the beginning of the eucalyptus treatment. Dr. Ashby says that among tuberculous and wasted children to be found in the workhouses, and among the lower classes, the mortality from measles is enormous, no disease being more certainly attended with a fatal result.

The beneficial effect of the treatment is brought about, Connolly thinks, in the main, by the inhalation of the vapor of the eucalyptus, and the local application to the mouth and fauces of antiseptics. The virus most probably attacks the air-passages first, where also secondary infection is likely to arise. It is difficult to say how far the absorption of the eucalyptus via the skin plays any part in the curative value of the treatment; one would expect that the lymphatics would rapidly carry away any of the oil that entered subcutaneously. Possibly some local direct action takes place on the organism, if present, in this situation. As long ago as 1891, Mr. C. Knox Bond, then Resident Superintendent of the City of Liverpool Fever Hospital, said that eucalyptus, taken internally, possessed no value at all in the treatment of scarlet fever; he had given it an extensive trial.

It will be noticed that these clinical trials and observations have nothing to do directly with the prevention of measles. This seems almost an impossible task, in the direct sense; but there is no reason why all susceptible children, in the time of an epidemic in large institutions and hospitals, or even in their own homes when the children are excluded from school, should not have the treatment in a routine manner. It can do no harm, it may prevent infection, it will certainly lessen the severity of the attack if it should come, and the danger of complications is lessened.

To sum up, therefore, Connolly sets forth the following conclusions:

1. The thorough rubbing in of eucalyptus oil all over the body, together with energetic local antiseptic applications to the mouth and fauces, is a most useful adjunct in the treatment of measles.

2. The case-mortality is decidedly lowered.

3. Even when serious complications are present, the treatment has a beneficial influence on the course of the disease.

4. Careful and constant nursing and maintaining of an even temperature of 65° F. are very important.

AURICULAR FIBRILLATION.

LEA in the *Lancet* of November 2, 1912, has this to say as to the treatment of auricular fibrillation:

Treatment may be directed either to the removal of the cause or, failing that, to the alleviation of the symptoms produced thereby.

Specific Treatment.—In the particular functional disorder we are dealing with the cause is only conjectural. Auricular hyperexcitability is provisionally suggested as the direct incentive to fibrillation of its musculature. Neither is the *causa causans* known, though it has been noted that both gross and microscopical examination have shown in the auricle inflammatory and structural change. In a few cases it is possible that nervous influences have been an important factor. So far, no drug has been discovered that has any effect in either preventing or checking fibrillation. Not even digitalis, which has so potent an effect in lessening the severity of the associated symptoms, has any effect in this direction. Complete cessation of fibrillation may occur independently of any known cause, and the same may be said of its onset.

Symptomatic Treatment.—The marked alleviation of symptoms following the exhibition of digitalis in many of these cases is the most hopeful point about this condition. Its good effect in heart disease has, of course, long been known. Wenckebach has expressed the opinion that it is likely that the administration of this drug in all conditions of cardiac disease is advantageous, and this is probably the routine treatment carried out by many practitioners, though it is certain that there are some cases, notably where the a.-v. conductivity

is itself the cause of the disease, as in heart-block, in which this drug may do harm. It is in the rheumatic cases of auricular fibrillation that digitalis acts the best. Its effect is due to the slowing of the pulse, which is caused by the checking of many of the irregular auricular impulses in the a.-v. bundle, so that the ventricle receives fewer stimuli. This effect upon the a.-v. bundle is produced by the action of the drug upon the vagus and directly on the a.-v. tissues. But digitalis has further effects in this condition. Wenckebach notes: (1) lessened excitability of the cardiac muscle, as evidenced clinically by the disappearance of extra-systoles when the drug is given in small doses; (2) strengthening of the beat due to the direct action on the muscle; (3) an increased irregularity of the pulse; though it is slowed, there is a greater variation in the size and opening of the ventricular beats. The same observer has also noted that this drug will produce a somewhat similar arrhythmia if given when the pulse is regular. This action is due to the vagus. In many cases of fibrillation, especially when associated with arteriosclerosis or chronic renal disease, digitalis appears to have no effect. This has been noted by Mackenzie, and Windle in a series of eleven cases states that whilst there was at first some improvement in the condition, this was not maintained.

Administration of Digitalis.—Mackenzie is in favor of giving fairly large doses if smaller ones do not cause response, and points out that the toxic effects of this drug are not dangerous, the first ill effects being usually nausea or headache. After the heart is fully under the influence of the drug smaller doses suffice to maintain the improvement, such doses being regulated by the general condition and the character of the pulse. The tincture of digitalis is the most convenient preparation to use. Where the effect of administration is desired to be carefully observed, Hewlett has suggested the intravenous injection of 1 mgm. of strophanthin. The effect of its action can be seen within a few minutes in the resting patient. Other drugs of the digitalis series have been less thoroughly investigated. They are probably more variable in their action. Turnbull has recorded, as a result of the administration of squills, sinus arrhythmia, partial heart-block, and another arrhythmia of uncertain character. Other drugs and the treatment for all the various associated symptoms it is not proposed to discuss.

EFFECTS OF COLD AIR ON BLOOD-PRESSURES OF CHILDREN AND YOUNG ADULTS IN VARIOUS STAGES OF TUBERCULOSIS.

HOOBLER in the *American Journal of Diseases of Children* for November, 1912, presents this summary of his studies upon this subject:

1. Blood-pressure in children having tuberculosis is persistently low, as has been found to be the case in adults.

2. When a patient is transferred to the open air there is a gradual increase of blood-pressure within one or two hours.

3. If the patient is kept constantly in the open air the pressure is raised to well within the normal limits and sustained at that point as long as the patient remains in the open air.

4. The more advanced the case, the lower the pressure indoors, and the higher the rise when put in the open air.

5. After several days in the open air the blood-pressure does not fall as much when placed in the ward as it did previous to outdoor treatment.

DISEASES OF THE PLEURA.

In the *Clinical Journal* of November 6, 1912, WALL well says that when the diagnosis has been completed the problem of treatment must be considered. If the effusion is passive and associated with increasing dyspnea, cyanosis, or sense of oppression, prompt removal is indicated. Kingston Fowler remarks very truly that "next to an unsuspected tuberculosis an enormous hydrothorax is the most common revelation of the post-mortem room," and

urges the importance of examining the chest of every patient however urgent the symptoms, pointing out the relief which so commonly follows the aspiration of a passive pleural effusion.

The operation is devoid of risk, if the rules of asepsis be observed; it must be remembered that in renal disease there is a very great liability to septic infection.

With regard to exudates Lord remarks that "tuberculosis occupies the first place in the etiology of pleural effusions, but all serofibrinous effusions cannot be classed as tuberculous." In Wall's experience exudates which are not tuberculous either are absorbed rapidly without interference or more frequently require treatment by resection of a rib and free drainage.

Experience seems to show that even if the first specimen of an effusion is found to be serofibrinous, but contains polymorphonuclear cells and pyogenic organisms, sooner or later it will become an empyema and require treatment as such.

In discussing the treatment of empyema Wall asserts he shall have occasion to point out the disadvantages of any less radical measures than resection of the rib and free drainage.

He confines his attention to serous or serofibrinous effusions which are presumably of a tuberculous nature.

During the acute stage while there is fever it is obvious that the patient should be confined to bed and measures be adopted for the relief of symptoms.

It seems extremely doubtful whether any measures such as the limitation of fluids in the diet, the administration of diuretics or the local application of hygroscopic substances such as compresses strong of salt solution have any influence on the absorption of a pleural effusion. Blisters should be avoided; they are of doubtful utility, and increase the risk of sepsis should aspiration become necessary. Poultices or hot-water bottles usually suffice for the relief of pain.

Wall assumes that to complete the etiological diagnosis a specimen of the fluid has been obtained early and submitted to examination. The removal of a small quantity in this way cannot have any therapeutic effect. Aspiration of larger quantities of fluid as a measure of treatment requires most careful consideration. All are agreed that in certain circumstances removal of at least some of the effusion is necessary. If the effusion is so large that it obviously causes mechanical embarrassment of the circulation and respiration, immediate relief is demanded. The development of bronchitic râles in the opposite lung is usually taken as a sign that delay would be dangerous. If after a lapse of two or three weeks the effusion does not seem to lessen in amount, all agree that some should be removed. There is, however, a divergence of opinion upon the advisability of removing in any case all the fluid that will come away on aspiration, and still greater divergence upon the advisability of early aspiration. The arguments for and against early tapping and complete as opposed to partial removal of the fluids are similar, and may be discussed at the same time.

In favor of delay is the fact that medium and small effusions are often spontaneously absorbed, and the patient is thereby saved the discomfort of the operation and the risks that may attach thereto.

The case against delay is urged eloquently by Dr. Philip in a lecture published by him in the *Medical Press and Circular* for January, 1912:

"Are we to tap? If so, when? It is often said, 'Wait and see, judge by results. Tap, if in spite of treatment, fluid is collecting; or tap if symptoms, especially dyspnea, be present in excess.' My answer is, Tap, and tap early. Why wait until the lung is thrown into a state of functional disability? Why allow collapse, and run the risk of adhesions and of imperfect expansion afterwards? Why not remove the fluid which is the resultant of a flaw in the lymphatic circulation? Why not save the inconvenience to the heart and other organs which in many cases supervenes? Why not get rid of the toxin present in the fluid? Yes, tap, and tap early, believing that you

thereby anticipate symptoms, lessen the chances of permanent disability of the lung, and limit present circulatory lung embarrassment.

"Do not be unduly scared by the bogey of disadvantages which may follow early aspiration. So far I have failed to meet them. It used to be said that the fluid in the pleural sac acted as a splint to the tender and diseased lung. This is poetry rather than sound theory. To try to realize it in practice is fallacious. It has also been suggested that in tapping you are liable to produce pneumothorax. So far in frequent tappings I have not had this occur. It certainly cannot be a common incident. Should you be unfortunate enough to induce it, what then? In place of a cushion of fluid you have a cushion of air, and no serious consequences are likely to ensue.

"You are sometimes warned that a patient may die during aspiration. This is, fortunately, of rare occurrence. In judging of the possibility you must keep in view that the patient with pleural effusion may die suddenly apart from aspiration."

TREATMENT OF HEMOPTYSIS.

GRUNBAUM in the *Clinical Journal* of November 6, 1912, tells us mental rest should be attempted by assuring the patient and his friends that hemoptysis is not a serious condition, and that it will stop and the patient will be no worse after than before, and in addition to this the patient may be given a small injection of morphine provided that the hemorrhage or secretion from the lungs is not so profuse as to lead to asphyxia were he not to cough for some hours.

The next point is physical rest.

The patient should be placed in bed and not allowed to move for any reason. If the side of the hemorrhage is known, then the patient should be laid on the affected side so as to diminish the risk of the blood flowing into the air-tubes of the healthy side.

If the hemorrhage has been very profuse it might be wise for the patient to lie quite flat without a pillow. Grunbaum thinks the presence or absence of a pillow should be determined purely by the inclination of the patient and not arbitrarily by the medical man or nurse. Some patients can lie flat with comfort, whilst others who are accustomed to sleep with many pillows may be totally unable to sleep when lying flat.

When it is difficult to make the patient keep still an ice-bag may be applied to the chest, and instructions given that it is important that it does not shift.

Grunbaum does not consider an ice-bag as a detractor of heat of any therapeutic value. In cases of this kind it may assist in making the restless patient control himself.

If hemorrhage continues in spite of treatment, then enforcement of complete physical rest by the application of strapping to the affected side should be considered, but this is a treatment which should not be adopted as a routine.

Grunbaum has often thought about the wisdom of giving inhalation of oxygen in order that the chest movements may be reduced to a minimum, but if oxygen is administered it must be done without exciting the patient or interfering with him in any way.

One must remember that the method which may be the most efficient in theory is not necessarily the best in practice. He then explains what he means by this somewhat extraordinary statement.

Some years ago experiments on the administration of oxygen were being carried out at the London Hospital. A face-piece of celluloid surrounded by flexible material was applied to the patient's face; this allowed almost pure oxygen to be inhaled.

The first patient on whom it was tried was suffering from heart trouble and was gasping for breath. On having the face-piece applied he had the sensation of oppression, and of being unable to breathe, and this in spite of a plentiful supply of oxygen, and said that he would willingly pay another patient for it to be tried on him.

In this case a method which had many theoretical advantages did not succeed in practice.

Possibly the simplest method of supplying oxygen is to obtain a rubber teat, cut a fair size hole in it, and attach it to a flexible rubber tube, taking care, however, that the oxygen shall pass through a metal tube immersed in hot water or bubble through hot water so that it shall be warmed before it reaches the patient. The rubber teat is inserted into the nostril, and it does not inconvenience the patient in any way.

This assists in the production of physical rest.

Next is the question of physiological rest.

This is naturally impossible, but an attempt should be made to diminish physiological activity, and especially that of the circulatory system, by making the heart beat as slowly as possible, and reducing the blood-pressure in the pulmonary system to a low pressure.

The first thing which should be done is to give a mild aperient. This produces an effect in at least three ways: By making the bowels act it prevents the accumulation and absorption of products of decomposition in the intestine of the tyrosine series, which we know tend to raise blood-pressure. Secondly, the diminution in the absorption of fluid prevents hydremic plethora. Thirdly, the irritation of the intestinal wall leads to dilatation of the blood-vessels, and thereby diminishes the quantity of blood in the rest of the circulatory system. In Grunbaum's opinion it is the first of these which is of the most importance.

One must remember that a powerful purge is contraindicated because the patient must not be violently disturbed, and strain of any kind must be avoided.

The next question which arises is, Do any drugs assist in slowing the heart and lowering the blood-pressure, especially the blood-pressure of the pulmonary system?

Whenever we use a drug we must satisfy ourselves that the beneficial effect produced by it is greater than any possible detrimental effect.

Grunbaum emphasizes the fact that occasionally symptomatic treatment varies very far from curative treatment. In cases of hematemesis and of hemoptysis symptomatic treatment may be responsible for the death of the patient. A patient may feel faint owing to low blood-pressure; raising the blood-pressure by injecting strychnine may remove the faintness, but it is quite possible that the rise of blood-pressure will cause fresh hemorrhage and lead to death.

EPIDEMIC SORE THROAT AND MILK SUPPLY.

In the *American Journal of Diseases of Children* for November, 1912, RUHRÄH reaches these conclusions:

1. Streptococcus infection may be caused by infected milk, and this disease may be exceedingly severe and attended with numerous complications and fatalities.

2. Even in cold weather milk may be the source of the disease.

3. No matter how carefully raw milk is handled it may at times be a source of danger.

4. The milk supplied to cities should be pasteurized, and where by accident the dairy company cannot properly pasteurize its milk, it should be compelled to notify its customers, so that they can either pasterize or boil the milk.

INFLUENCE OF HIGH PROTEIN FEEDING ON GENERAL METABOLISM, ON INTESTINAL FLORA, AND ON BODY TEMPERATURE OF INFANTS.

HOLT and LEVENE in the *American Journal of Diseases of Children* for November, 1912, reach these conclusions:

1. Alimentary fever may under certain conditions occur in infants after administration of casein of cow's milk and perhaps of other proteins.

2. The rise of the body temperature was observed only when the food mixture was made up so as to contain about 6 per cent of protein (chiefly casein) and a minimal quantity, only about 150 to 175 Cc., of milk daily.

3. The rise of body temperature was invariably accompanied by a retention of

chlorides, which, however, usually preceded the febrile attack by two or three days.

4. After the first rise of temperature the fever persisted so long as the diet was continued, but in every instance promptly disappeared as soon as the food was changed.

5. The fever is apparently due to the direct action of the absorbed protein, since the bacterial conditions of the intestines noted during the period of the "synthetic" food were not different from those noted during the preceding period. Also, conclusion 4 speaks in support of this view.

6. From the observations here reported it would appear that the changes in the food influenced the chemistry of the excreta more than they did the bacteriology. For while the chemical changes resulting from the food variations differed considerably in the individual cases, the bacteriology changed along the same general lines in all. In view of this fact and of the slow changes in the intestinal flora noted in these observations, such changes would seem to have but a limited application for therapeutic purposes, though a very definite one when the food changes can be made sufficiently great.

7. It seems clear from these observations that one may use considerably higher percentages of protein in milk formulas than the 3.5 per cent of Finkelstein's formula. This is a point which may be of much practical importance in conditions in which there is marked intolerance both of fats and carbohydrates. Such high proteins as 4.5 per cent or over should only be used for limited periods, and never given at all except with a suitable proportion of whey.

8. This report emphasizes the physiological importance of whey in the nutrition of infants and other young animals. While laying stress on the dangers of whey, especially from its sugar content, in many forms of intestinal disturbance, Finkelstein and Meyer have also appreciated the dangers to nutrition which may follow reduction of the salts. Recently Osborne and Mendel also have found that the mineral salts in the proportion present in whey were absolutely essential for the growth of animals, and that in the absence of salts, though maintenance of life was possible, growth could not be induced. As yet it is not possible to formulate any definite opinions as to the nature of the whey components which inhibit that action of casein which, in the absence of whey, causes the rise of body temperature.

9. The present observations call special attention to the work of V. C. Vaughan and his collaborators, who have repeatedly reported the production of fever by the subcutaneous injection of various proteins. Whether or not the fever induced clinically in some cases and experimentally by Vaughan is occasioned by the same mechanism remains to be established.

HIGH BLOOD-PRESSURE.

OSLER in the *British Medical Journal* of November 2, 1912, writes on this subject, and in regard to treatment says the first thing is to determine the nature of the case, whether simple hypertension, arteriosclerosis, or chronic nephritis, or all combined. In the case of the active, driving business man, who has unconsciously damaged the machine, let him reduce the speed from the twenty-four knots of a *Lusitania* to the ten knots of the ocean tramp. It is interesting to note that the worry and apprehension associated with the first shock of the discovery that something is wrong may cause loss of weight, and with it reduction in the blood-pressure. A man of sixty-two, whose first indication of trouble was an attack of transient aphasia, lost two stone in weight in a year, and his blood-pressure sank from 220 to 150. He has been better since he has taken a philosophical view of the situation, and his blood-pressure has risen to 180.

The second thing is to lessen the intake. We all eat too much, and in no age was the saying more true that "the platter kills more than the sword." Time and again, Osler asserts, he has been impressed with this as a possible factor in obscure forms of hypertension and arteriosclerosis in persons otherwise temperate. Largely a matter of

habit, the amount of food taken should be enough to keep the engines going at a steady speed. A diet of low protein content is best, and fairly large quantities of liquid should be taken.

Thirdly, elimination should be promoted in every way by making the action of the kidneys, bowels, and skin thoroughly efficient.

Fourthly, of drugs none are entirely satisfactory in chronic hypertension. Nitrites in various forms may be used, and are often of temporary benefit, but Osler thinks the general opinion now is that neither the nitrites nor potassium iodide are of permanent benefit; though now and again one meets with an instance in which the prolonged use of potassium iodide is followed by marked lowering of the pressure. A preparation of mistletoe has also been much lauded, but it, too, is very variable in its effects. Be careful on this point—if the patient does not feed so well, and begins to get thin and look badly, stop all drugs, trust to general measures, and let the pressure rise. In the robust man of full habit in the hypertensive crises with headaches, dyspnea, or angina, a free venesection is indicated, to be followed by mercurial and saline purges.

HEMOPTYSIS IN TUBERCULOSIS: ITS SIGNIFICANCE AND ITS TREATMENT.

In the *Medical Record* of November 9, 1912, FRAZER gives these directions for the treatment of hemoptysis:

Although there exists considerable difference of opinion as to the causes of hemoptysis, there is practical uniformity in the methods employed in the treatment of this condition, despite the use of drugs apparently antagonistic in their action and other minor details. The first indication is to reduce blood-pressure; as Smith says: "This constitutes the most rational and successful line of treatment."

As hemoptyses are sometimes preceded by a sense of tightness in the chest or by the presence of blood-streaked sputum, it may be possible to prevent their occurrence by insisting on absolute rest and by the administration of a drug—such as the nitrites—with the view of decreasing vascular pressure. Either of the following may be used:

℞ Spirit. glyceryl. nitritis, min. xv;
Aquæ destillat., q. s. f℥ij.

Dose: f℥j.

℞ Sodii nitritis, gr. xv;
Aquæ destillat., f℥ij.

Dose: f℥j.

A teaspoonful of either of the above may be given every four hours for two or three days.

More commonly, perhaps, the patient receives no warning and the physician is summoned to treat an active hemorrhage. In the presence of this condition the indications are three in number: to secure absolute physical rest, to quiet the fears of the patient, and to lower the blood-pressure, attempting in this manner to favor the formation of a clot.

This means that the patient must be put to bed, and all unnecessary movements on his part must be avoided; he is not allowed to get up to attend the demands of nature, nor is he allowed to talk. A comfortable position should be assumed; usually the semirecumbent posture (with one or two pillows under the head) is best; and the patient should be assured in a few words that there is little cause for apprehension. Frazer's own practice is to break one of the little "packages" of amyl nitrite (such as are prepared by the different drug firms), holding it for several minutes under the patient's nostrils. This is the most rapid and effective means of securing vasodilatation that we possess, as the action of amyl nitrite begins within fifteen seconds (and lasts for about ten minutes), according to the investigations of Hewlett, quoted by Hirshfelder. As a result of the vasodilatation produced by this drug, and assisted in many instances by the quieting of the patient's fears which follow the appearance of the physician, the hemoptysis frequently comes to an end within a few minutes. Whether or not this occurs, the patient should receive atropine gr. 1/50 hypoder-

mically, and this dose may be repeated two or three times within the next twenty-four hours. Some advise an initial dose of gr. 1/25. This drug, though usually classed with the heart stimulants, acts most efficiently in cases of hemoptysis, the assumption being that the flushing of the skin, which is characteristic of the action of atropine, relieves the congestion of the deeper organs, with a consequent decrease of intrapulmonary pressure.

In place of atropine some prefer the use of nitroglycerin. This may be administered hypodermically in doses of gr. 1/100, repeated at short intervals, at first every half-hour or hour, for three or four doses, later less frequently. After vasodilatation has been obtained, more permanent effects may be secured by the use of sodium nitrite, gr. j, every three or four hours.

Morphine, although used considerably in hemoptysis, should not be resorted to as a routine measure. It is indicated if the cough be troublesome, but its field of greatest usefulness is in those cases in which excessive nervous irritability exists.

It is customary, at the onset of a hemorrhage, to place a light ice-bag over the precordium, with a view to quieting the heart's action. A fuller discussion of this measure will occur later, in connection with the use of digitalis.

There is no specific diet for patients with hemoptysis; but the amount given should be small and fluid in character (milk in small quantities and egg-albumen are suitable); especially is it necessary to restrict the diet during the first twenty-four hours.

While depletion through the intestines by means of catharsis has been advised and is theoretically indicated, it is better to wait twenty-four hours before attempting to move the bowels on account of the exertion which this action imposes on the patient. Also examination of the chest should not be undertaken, or should be restricted to auscultation; under no circumstances should percussion be practiced.

As to the length of time that a patient who has had an hemoptysis should stay in bed, there exists considerable difference of opinion; it is safer to insist on rest in bed for twenty-four to forty-eight hours after the expectoration of posthemorrhagic clots has ceased.

Such, in brief, is the routine treatment of hemoptysis; but a discussion of this subject would be incomplete without an allusion, at least, to other drugs and measures which have been advocated in this condition. Thus, common salt, in doses of a teaspoonful, has been employed on account of an irritation of the vagus, with reflex constriction of the pulmonary vessels, which it is supposed to incite; its action, however, is hypothetical; while ice by mouth is probably to be regarded as a physical hemostatic only.

Chloroform has been recommended because it "lessens the heart action, reduces the blood-pressure, and diminishes the respiratory movement." Two to 4 Cc. are dropped on cotton and held near the patient's nostrils, and the inhalation of a few drops is continued at one-hour intervals for several days.

The use of emetics has been abandoned, practically, and ergot, once considered the drug *par excellence,* has been supplanted by the vasodilators.

A valuable procedure which should be borne in mind is the tying off of the extremities by means of bandages applied to the middle of the arms and thighs; it is especially serviceable in large hemorrhages where there is danger of exsanguination. The constriction, which should be great enough to interfere with the venous return without obstructing the arterial flow, should be gradually removed after having been applied for ten or fifteen minutes.

It is evident that the drugs and procedures above described depend upon one common principle, the reduction of blood-pressure. More recently attempts have been made to facilitate the formation of a clot by other means. Thus, drugs are employed which are supposed to increase the coagulative power of the blood; chief among these are gelatin and the calcium salts—the chloride and lactate.

More difficult of explanation is the ra-

tionale of the action of adrenalin in cases of hemoptysis. Being a vasoconstrictor, one would think that by defeating the very object ordinarily sought—*i.e.*, the reduction of the blood-pressure—it could exert only a baneful influence; yet this drug is one of the most reliable agents at our command for the halting of a hemorrhage. Coleman recommends five drops of adrenalin chloride, or three grains of the suprarenal extract, every three or four hours. The action of the recently introduced pituitary extract has not been satisfactorily explained.

Another drug whose mode of action seems but imperfectly understood is digitalis. At one time held in high esteem as a hemostatic, its virtues are but seldom sung to-day. This is the more remarkable when we compare its effects with those of the almost universally used precordial ice-bag. In discussing the effects of the latter, Hirshfelder says: "Simultaneously the blood-pressure rises and the pulse increases in volume. There is evidently both a reflex vasoconstriction from stimulation of the vasomotor center and a reflex stimulation of the vagus." Besides this, da Silva thinks that there is a direct stimulation of the heart muscle. It will be noted that these effects are exactly those brought about by digitalis, and hence enthusiastic hydrotherapists are in the habit of speaking of the ice-bag as "physiological digitalis." It is possible that digitalis, on account of its well-known tendency to upset the stomach, has for this reason been superseded by the ice-bag; but if the latter is indicated as often as it is prescribed, there surely must be a considerable number of cases in which digitalis would be of benefit.

It may be seen from what has been said that the profession is by no means united as to the significance and the treatment of the symptom hemoptysis, occurring in pulmonary tuberculosis. And yet, in spite of the fact that this symptom is not in the strict sense pathognomonic, that it may appear early or late in the disease, or not at all—in spite of these limitations and restrictions, hemoptysis must be regarded, diagnostically, as a symptom of great value, prognostically as a sign of considerable though still undetermined import. And in spite of the advocacy in this condition of drugs antagonistic in their action—drugs which are classed as stimulants, depressants, dilators, and constrictors—we cannot disregard the accumulated clinical evidence at our disposal that all of these drugs have proved useful; and, perhaps, with a fuller knowledge of the action of drugs and a deeper insight into the cause and the "pathology" of hemoptysis, we may find that the antagonism is more apparent than real.

THE ACTION OF THE DIGITALIS SERIES IN HEART DISEASE.

In the *Proceedings of the Royal Society of Medicine* for July, 1912, which have recently appeared, CUSHNY states that the slowing of the normal heart rhythm under digitalis is generally, but not invariably, inhibitory in origin. The slowing in auricular fibrillation does not arise from stimulation of the inhibitory center, and in fact the inhibition is less active during the slow pulse than before or after the digitalis action. Having reached the negative point that the slowing in these cases is not due to inhibition, it is worth while recording the fact. But we have scarcely approached the question as to what the slowing is due to. We have got rid of one explanation which has been given, and we are now faced with the difficulty of saying what the slowing arises from. One is inclined to say it may be a direct action on the bundle; that there was failure of conduction in the fibrillation cases from direct vago-mimetic action. But while it occurs in the frog, he is, after all, a distant relative to the human to argue from, and Cushny tried whether one could find a defect in the passage of impulses in the dog, whether the passage through the auriculoventricular bundle was rendered more difficult in digitalis; because we found some years ago that there was often developed in the dog's heart under digitalis an independent rhythm in the ventricle, with persistence of the auricular rhythm, which suggested block in the auriculoventricular bundle. As a matter of fact,

there is no change in the rate of passage through the bundle owing to digitalis in the dog, except through inhibition. If one paralyzes inhibition the rate of passage through the bundle is the same before digitalis, or before strophanthin in particular, as after it.

So the dog experiments do not encourage us to believe that the slowing of the pulse in this irregularity in man is due to failure in the passage of impulses through the bundle. On the other hand, another explanation might be that whilst the passage through the bundle is unchanged, the impulse having passed the bundle finds a somewhat unsympathetic ventricle, a ventricle with a low rate of excitability, which fails to respond to it. As a matter of fact, one finds a slight diminution in the excitability of the ventricle in the dog; that is to say, the ventricle stimulation by electrical shocks requires a somewhat stronger shock after strophanthin than before it in a heart freed from the inhibition. But Cushny is not sure, he asserts, that the slowing of the heart is not really a tribute to the action of digitalis in improving the contraction of the heart. The heart in these cases is rapid partly, perhaps, because it is irritable; it is half-starved, and the digitalis, by improving the contraction, may do something by way of improving the nutrition, and thus making the ventricle indirectly less excitable and less receptive for auricular impulses. What suggested this idea to Cushny was that in some of these cases there was a considerable and quite definite fall in the rate of the pulse simply on putting the patient to bed. After this degree of slowing had been maintained for a time they gave digitalis, and it slowed still further. One cannot suppose that the rest in bed led to paralysis of the bundle, or lessened the conductivity of the bundle through direct action. Yet one must suppose that the slowing is of the same character. If digitalis slows the heart by merely improving the nutrition, one would suppose rest in bed would have the same effect. That is the reason Cushny suggests that possibly the slowing is due to the indirect action of digitalis upon contractility. But this is purely hypothetical. We have, however, a definite problem to solve—the cause of the slowing of the heart and pulse in auricular fibrillation under digitalis, for the old explanation has proved to be incorrect.

DIGITOXIN.

The *Münchener medicinische Wochenschrift* of October 9 and 16, 1912, contains an interesting article on this subject. It concludes as follows:

1. Digitoxin, the most powerful constituent of digitalis, is absorbed first in the intestines and not in the stomach. Absorption takes place very slowly, and even in the most favorable instances from five to six hours is required for the complete process. Experiments have shown that any clogging of the circulation in the portal veins will retard the process still more; the value of the different preparations of digitalis, as regards their absorptive powers, is thus explained.

Digitoxin is absorbed much more rapidly and more completely from the extractum digitalis depuratum (digipuratum) than from the powdered leaves of *Folia digitalis titrata*. In this connection the term digitoxin includes all the digitalins (digitalis glucosides) which are soluble in chloroform, and to which digitalis leaves owe their therapeutic value. The rapid and more complete absorptive powers of its constituents may explain why digipuratum so often proves more efficacious than a corresponding quantity of the powdered digitalis leaves.

2. Tests have shown that the nausea and vomiting induced by a medicinal dose of digitalis may be attributed to two causes. In experiments on cats, vomiting occurs in consequence of the irritating effect of the drug on the stomach. This usually takes place within the first four hours, and after a short period of salivation (after a not too toxic dose), and is accompanied by only slight general phenomena. Almost the entire unabsorbed dose of digitoxin may at this juncture be found in the stomach.

Vomiting as a direct result of irritation

of the stomach may be easily distinguished experimentally from that which takes place as a symptom of the absorption of the toxin. If a non-fatal dose be used, resorptive vomiting occurs in six to seven hours, after prolonged salivation, and is accompanied by general phenomena. Since at this time no digitoxin is found in the stomach, this form of vomiting is evidently the result of resorptive reaction and is not due to local irritation in the stomach.

3. Cats are good subjects for experiments, as the mucous membrane of the stomach reacts regularly after the administration of a stomach irritant, and those animals in which vomiting takes place within the first hour after the administration of the dose may serve as an indication of the irritating qualities of certain preparations of digitalis. For this purpose doses should be used which ordinarily would induce resorptive vomiting after six hours. The sooner the vomiting occurs after the first three hours, the more powerful may the irritating action of the drug be accounted.

4. A series of experiments have shown that digipuratum is decidedly less irritating to the stomach than digitalis leaves. Comparing the action of corresponding doses of digipuratum and *Folia digitalis titrata*, the latter, almost without exception, induces vomiting within the first three hours, while digipuratum never leads to vomiting through local irritation in the stomach. Since a dose of digipuratum contains the same amount of digitoxin, and surely not less of other therapeutic glucosides than an equal dose of the leaves, the cause of the greater irritating quality of the latter must be sought for in other constituents, which exist in the therapeutic components of the leaves and are absent in the purified extract.

5. As a rule, the longer a preparation of digitalis remains in the stomach the more irritating will be its action. Tests for this purpose prove that the drug remains in the stomach the shortest time, and resorption takes place most rapidly, after a dose of digipuratum in solution, the powder in suspension coming next in order. The behavior of *Folia digitalis titrata* was decidedly less favorable with regard to both these conditions. An infusion of the leaves was absorbed from the intestines just as well as the solution of digipuratum, but it remained in the stomach for a long time and induced vomiting more promptly.

6. Experiments confirm the clinical observation that digipuratum, in comparison to its potency, affects the digestive organs less than the leaves. The powerful quality of the leaves is absorbed much more quickly from the purified extract than from the leaves themselves, and as the experiments on cats have shown, an equal, and even a more powerful, dose of digipuratum irritates the membranes of the stomach less than one of *Folia digitalis titrata*, or of an infusion of the leaves.

MALTOSE IN INFANT FEEDING.

MORSE, in the *American Journal of the Medical Sciences* for November, 1912, says there is a type of diarrhea in infancy, usually characterized by watery, green, foamy, irritating stools, but sometimes with discharges of mucus and blood, which is associated with the presence in the intestinal contents of large numbers of bacilli belonging in the group of which the Bacillus perfringens and the gas bacillus (Bacterium Welchii) are members. These organisms ferment the common disaccharides and liberate considerable amounts of butyric acid. Large amounts of sugar are, therefore, contraindicated in this group of cases, maltose being more harmful than lactose because it undergoes butyric acid fermentation more readily. This type of diarrhea yields most rapidly to buttermilk and mixtures containing living lactic acid bacteria with a small amount of lactose. The lactic-acid-forming organisms kill out the pathogenic organisms. Being themselves fermentative organisms, they cannot develop in a protein medium. A moderate amount of lactose must, therefore, be present in the food.

It has been shown by Theobald Smith, Kendall, and others that when bacteria act upon carbohydrate and proteid substances

they produce from the former fermentative products and from the latter putrefactive substances. The fermentative process takes precedence over the putrefactive if both carbohydrate and proteid are present together in the medium in which they are. The products of the fermentation of carbohydrates are practically harmless, while the products of the decomposition of proteids are actively toxic. In the diarrheal diseases due to organisms, such as the dysentery bacillus, which produce toxic substances from protein, it is therefore of great importance to have an excess of readily fermentable carbohydrate in the food to change the character of the bacterial activity from the proteolytic to the fermentative type. This is most easily accomplished by the feeding of the disaccharides, which are preferable to the monosaccharides, because they are more readily absorbed from the intestinal tract, and to the polysaccharide, starch, which, if given in sufficient amount to accomplish the desired result, is almost certain to disturb the digestion. Starch is broken down so slowly, moreover, that there is never a sufficiently great concentration of sugar at any time. Lactose is preferable to maltose for several reasons. It is, in the first place, more slowly broken down and absorbed and consequently exerts a more prolonged action. In the next place, few organisms, except those normal to the intestinal tract of infants, can utilize it before it is broken down by hydrolysis. There is also danger, as already pointed out, if maltose is given freely, of encouraging the overdevelopment of the bacillus acidophilus and developing a sugar intolerance.

Lactose is for many reasons preferable to maltose for the feeding of normal infants. There is a type of intestinal indigestion due to the fermentation of sugar in the treatment of the convalescent stage in which maltose is better borne than lactose. Maltose is contraindicated in the treatment of diarrheas due to the gas bacillus and similar organisms, and is less useful than lactose in the treatment of those caused by the dysentery bacillus.

DRUGS, DIABETES, AND THE LIVER.

No one imbued with an adequate appreciation of the relative values of scientific evidence would venture at present to formulate a theory of the etiology of diabetes in the belief that it might afford a final satisfactory explanation of the manifold facts known in relation to the disease. At best we can to-day investigate carefully the clinical manifestations and the experimental analogies and attempt to supply for them a tentative, tenable hypothesis. Accordingly, as the symptoms thus become unraveled, one by one, and exhibited in their physiological or pathological significance, the interpretation of such abnormalities of metabolism is being slowly yet fundamentally evolved and brought closer to our understanding.

Diet has, of course, long occupied the conspicuous place in the therapeutic management of diabetes. It is well known, nevertheless, that there are drugs which appear to influence the intensity of the glycosuria in certain instances, so that the possibilities of drug therapy are now and then reverted to even by serious-minded clinicians, and medical literature is never free from claims made for some pharmacologic agent. One almost hesitates to discuss these with any seriousness under circumstances in which a fragment of truth may be snatched from its legitimate attachment and enlarged to fit some fraudulent assertion of commercial medication. A timely warning may not be amiss in advance of the reference which they make to a proposed explanation of the antiglycosuric action of a few drugs that have been tested experimentally.

Among the classic modes of evoking glycosuria the piqûre or puncture of the roof of the fourth ventricle first suggested by Claude Bernard is familiar to every student. This unique attack on the lower nervous centers and its conspicuous result quite naturally led to the assumption of a close connection between the nervous system and diabetes, and the experiment has played a part in all theories advanced to explain the onset of the symptoms. In recent times

research has shown that the adrenals presumably act as intermediators in the production of the attendant glycosuria. An excretion of sugar can readily be induced experimentally by injection of epinephrin preparations. Now the secretion of the adrenals has a familiar function in raising general blood-pressure through constriction of the arterioles by a local action on them. Observations of Neubauer at the Vienna University clinic indicate that many agents which similarly raise general arterial pressure by a peripheral action on the blood-vessels may lead to glycosuria. Barium chloride is instanced in illustration. Vasoconstriction and glycosuria are here concomitant. Those drugs, like chloral hydrate, alcohol, opium alkaloids, etc., belonging essentially to the group of narcotics and agents acting conspicuously on the nervous system (for which reason they were chosen in the earlier therapeutic schemes), may often check or diminish the piqûre glycosuria. They accomplish this by an effect directly the opposite of that discussed for epinephrin, for they produce a vasomotor paralysis and tend to lower arterial pressure. Their antiglycosuric effect is in no wise ordinarily due to an interference with the permeability of the kidneys for sugar.

A further analysis of this interrelation between drugs, blood-pressure, and attendant glycosuria has disclosed the interesting and highly significant fact that the vasoconstriction is accompanied by marked hyperemia of the liver. Any intervention which will induce a transitory hyperemia of this organ along with a temporary stasis of the blood therein contained is likely to be followed by excretion of sugar. The immediate effects of the sluggish circulation of blood in the liver remain to be ascertained more exactly. In any event stasis of blood appears to be responsible for a conversion of glycogen in the liver and a release of an excess of sugar into the blood—simultaneous hyperglycemia and glycosuria.

The symptom-complex thus outlined is most significant. The hepatic overproduction of sugar appears here in the light of a local asphyxial response. This is not the first time that asphyxia and glycosuria have been found associated with each other. It is easier now to picture numerous hitherto inexplicable phenomena of glycosuria from a more general point of view. The nervous system may activate the adrenals to undue secretory response; the glandular agent liberated into the circulatory system may effect vascular changes expressed in general vasoconstriction and dilatation of the hepatic vessels at the same time. The liver cells appreciate the altered condition of the stagnant blood, and an undue pathologic transformation of glycogen into sugar begins. Much in all of this has been anticipated; but every effort to look at such complicated problems from new angles brings refreshing stimulation to the critical investigator. In the present instance he has endeavored to focus attention somewhat more effectively on the liver as a contributory factor in the pathogenesis of glycosuria than is commonly done. The liver is admittedly the storehouse from which the wasted sugar makes its exit; yet the nature of the perversion which induces the striking upsets in its functions is only beginning to be revealed.—*Journal of the American Medical Association*, Oct. 19, 1912.

BISMUTH POISONING.

In the *American Journal of the Medical Sciences* for November, 1912, WARFIELD writes on this subject.

From the cases reported he says we can deduce a rather typical picture which differs from the poisoning of lead and mercury.

There are three stages: (1) Benign, where the violet-black line is the only manifestation; (2) moderately severe, where there is stomatitis, more or less acute, to which succeeds a chronic stomatitis characterized by discoloration of the gum margins and tattooing of the mucosa which extends to the buccal cavity; (3) a severe form characterized by a longer duration of the stomatitis, the margins of the gums and tattoo-like plaques ulcerate, secondary infections supervene, and general symptoms, as fever,

hiccough, vomiting, diarrhea, and albuminuria, occur.

Prodromal symptoms are slight, or, if present, there is only malaise, slight salivation, or tenderness about the mouth. There soon follows the line on the gums or tattoo plaques and ulcerations on the buccal mucosa. The bismuth line occupies a part or all of one or both jaws. It resembles the lead line, but differs from it because of its really violent tint. In benign cases the gum margin is not swollen. In severe cases there may be swelling, ulceration, and loosening of the teeth. Cessation of the bismuth treatment brings about improvement, but the gums still retain the discoloration for some time.

The line on the gums is usually the first symptom of the poisoning, but occasionally there are plaques on the buccal mucosa like tattoo marks. The bismuth plaques may be found anywhere in the mouth, but show preference for sites where the teeth and gums come in contact, and the first plaque is often at or near the opening of the duct of the parotid gland. The ulceration is more apt to occur at this situation. The sides of the tongue are also frequent sites of ulceration.

The color is the same in all, a violet-black. The lesions rarely appear insidiously, but are usually preceded by salivation and erythematous stomatitis. At times the lesions come on rapidly with edema.

The spots may be simply small areas of bluish violet-black color; in severer cases there is some swelling and a diphtheric white membrane in the center. This is characteristic of bismuth. In very severe cases gangrene occurs with resulting loss of substance.

The breath is usually foul, depending upon the state of the lesion.

The spots appear simultaneously or in crops. They cause more or less functional disturbance and thus tend to weaken the patient. Mastication may become impossible. The swollen and painful tongue may with difficulty be protruded. Ulcerations on the soft palate and tonsils may cause hoarseness. Salivation is marked, and when healing of ulcers begins the saliva may be so tenacious as to interfere with swallowing. The patient in these severe types naturally emaciates, and there is often fever due to secondary infections. There also may be dysphagia, vomiting, and diarrhea. The urine may even be blackish and frequently contains bismuth. Occasionally albumin and casts are present. These symptoms are produced by a pure bismuth salt. They are not the result of impurities, such as lead, arsenic, or antimony.

TREATMENT OF DENGUE-FORM FEVER.

KENNEDY details in the *Indian Medical Gazette* for November, 1912, his plan of treatment. Many of the cases reporting sick with this disease were found to have enlarged spleens, a legacy of old-standing malarial infection. From all these and from any other doubtful cases blood-smears were taken and sent for examination for the malarial parasite; they were subsequently put on quinine 10 grains, so as to be on the safe side. The quinine did not in any way shorten the fever.

Aspirin and phenacetine relieved the body pains and headache most effectively.

Liquor morphinæ in frequent small doses had to be given in one or two cases in which the former failed, or to control vomiting. The routine treatment adopted was:

1. Initial purge.
2. Rest in bed with light diet.
3. Diaphoretic mixture and aspirin 5 grains every four hours, when pains were bad.
4. Tonic mixture during convalescence.

EXPERIMENTAL INVESTIGATION OF THE VALUE OF HEXAMETHYLENAMINE AND ALLIED COMPOUNDS.

BURNAM (*Archives of Internal Medicine,* vol. 10, No. 4) as the result of experimental study concludes that examinations of the bile, sputum, saliva, and cerebrospinal fluid show that even after rather large doses of hexamethylenamine there appear in them

but traces of the drug, certainly in percentages less than one to 150,000. Whether this trace is of hexamethylenamine, as seems most likely, or of formaldehyde, it is impossible to state, because the only test which would show it is Hehner's, which does not differentiate these two substances. So far as any therapeutic value is concerned, it does not make any difference, because, as already shown, solutions of formaldehyde of the weakness indicated do not possess any antiseptic value. The use of hexamethylenamine for the curing or bettering of, or as a prophylactic against, infections of the bile passages, respiratory passages, and cerebrospinal system is illusory, and cannot possibly yield results. In the urine the clinical and bacteriologic findings have conformed in every way with the chemical findings, viz., only those patients who show free formaldehyde have been improved by the drug.

The phenolhydrazin-nitroprusside test is very simple, and when applied gives the physician an easy method of determining the dose of hexamethylenamine which he should use, and also shows those cases in which no results from this drug can be expected.

The test is of value in determining the efficiency of compounds whose value rests on the liberation of free formaldehyde, and it is to be hoped that an endeavor will be successful in securing a substance which, when taken by the mouth, will be excreted through the kidneys and will liberate formaldehyde in the urine in every case.

Although it has its limitations, these experiences show that hexamethylenamine, when properly given, in more than half the cases of urinary infection is of immense value, and at the present time superior to any other drug in common use.

The average dose of hexamethylenamine is 7.5 grains repeated two or three times per diem. In an occasional case of irritable bladder even this amount causes a sufficient liberation of formaldehyde to produce irritation. Such, however, is the exception. If it does cause irritation, free formaldehyde will always be found, and the indication is to reduce the dose. From what has been said, it is evident that there is no fixed dose. This is to be obtained by testing the urine and observing the toleration of the patient. Where 10 grains causes no free formaldehyde liberation, the dose should be increased to 20 grains, and if there is still none, to 30 or 40 grains, repeated every four hours. The only toxic effect due to hexamethylenamine is occasioned by the liberation of formaldehyde in the urine, and when this does not occur it is safe to push the dose until it does appear. The first disagreeable symptom in the author's experience was vesical irritability. It has always led him to discontinue or diminish the dose. In such a case pushing the dose might easily lead to hematuria. He has never observed a macroscopic hematuria from the use of hexamethylenamine.

The proper treatment is to give a dose just large enough to be under that necessary to cause bladder irritation. Using this dose, improvement will follow so rapidly in most cases that long continuation in the use of the drug is unnecessary. On the other hand, it is certainly possible to keep up the dosage for months without any serious impairment of either the general health or that of the kidneys.

As to the tolerance of the urinary organs to formaldehyde, Burnam's method of investigation was, first, to try various strengths of formaldehyde solution in the bladder, beginning with a very small percentage and gradually increasing it. Having found a solution which was well tolerated in the bladder, it was then injected into the kidney pelvis through a renal catheter. There were marked individual variations in the tolerance of the vesical mucous membrane to formaldehyde solution, and this independent of the state of inflammation present. Of course, an acutely inflamed bladder is much more intolerant than a healthy bladder. In chronic cystitis and in healthy bladders he has found it practical to use solutions varying in strength from 1 to 3750 to 1 to 7500. Occasionally a bladder is met with which does not tolerate even this weak solution. He has had

no cases which would not tolerate a 1-to-12,500 solution of formaldehyde. The kidney pelvis will tolerate solutions as strong as does the bladder, and he has never noticed any irritation in the kidney itself after an irrigation.

The formaldehyde irrigations for bladder and kidney infections have proved very effectual. They are especially valuable in cystitis, associated with ammoniacal decomposition of the urine, such as occurs with enlarged prostate or tumor of the bladder.

The gall-bladder tolerates formaldehyde readily in solutions of 1 to 3750. In infected incisions and sinuses, a 2½-per-cent solution can be used without giving undue pain.

A few tests were made with solutions of hexamethylenamine. It is not at all irritating and can be used in the bladder and kidney in 50-per-cent strength without any ill result, but apparently with no effect on the infection.

When given by mouth, hexamethylenamine begins to appear in the urine in fifteen minutes, reaches its maximum excretion in two hours, continues to be excreted abundantly for about eight hours, and has, if the dose given was not greater than 30 grains, disappeared in twenty-four hours. After the twelfth hour the amounts excreted are very small. In a communication to follow this the author will report more in detail the quantitative eliminative amounts of hexamethylenamine.

The question of interest here is, how much formaldehyde is present in the urine after giving hexamethylenamine by mouth? As yet the author has not sufficiently worked out this question, but can say roughly that in some patients it is possible to secure solutions of 1 to 5000, and stronger. His important finding was that on the customary doses of from 5 to 10 grains, given three times a day, not more than two patients out of ten showed any decomposition of the drug into formaldehyde at all. This was tested out, not only on patients suffering with infection of the urinary tract, but on a series of normal individuals, and on a number of patients convalescent from operations. When a patient was found to show abundant formaldehyde after a 10-grain dose, it also was found that a 2- or 3-grain dose often sufficed to show the breakdown. While not more than 10 per cent of those examined showed the formaldehyde free after the smaller doses, at least 60 per cent showed it when the dosage was made from 20 to 30 grains, repeated every four to six hours. In a few instances in which the formaldehyde was not present after dosage of 30 grains, the quantity was raised to as high as 100 grains at a single dose without causing a decomposition of the hexamethylenamine. There are some individuals who do not break down hexamethylenamine into formaldehyde. This, however, is the exception, not the rule.

CONTRIBUTION TO THE TREATMENT OF SKIN TUMORS, ESPECIALLY CANCER, WITH CARBON DIOXIDE SNOW.

NYSTROM (*Deutsche Zeitschrift für Chirurgie,* Bd. 117, H. 5-6) notes that the first treatment should be energetically applied. The depth of the cancer vegetations is not easily influenced, and one therefore does well to begin the treatment by freezing to the greatest possible depth. To accomplish this object the whole surface of the ulcer should be treated under strong compression. The author is accustomed to continue the application for two to three minutes, and repeat it if necessary after two or three weeks. In very superficial tumors a single application for thirty seconds may be sufficient, though it seems wise never to treat less than one minute since there is no danger in moderate overdose. Two or three minutes after freezing the cheek there usually occurs a swelling in the surrounding skin, and the eye may be swollen shut for a day or two, a fact with which a patient should be made acquainted beforehand.

The author has had under treatment eighteen cases of skin cancer, in two of which the treatment has only recently been started. Of the remaining sixteen cases, thirteen were of the superficial form, mostly of the type of rodent ulcer. These

were in the course of a few weeks, or at the most in a few months, without exception entirely cured. Two of the cases were of the more malignant, deeply penetrating form, with great tendency to ulceration; in both of these healing occurred, but only after very long-continued and energetic treatment. In all the cases the freezing method has proven very satisfactory because of the ideal cosmetic condition and because of the fact that the freezing has a selective action upon the epithelial elements without any serious disturbance to the connective tissue. It must be admitted, however, that it is too early to express an opinion upon the duration of the results. The oldest of the author's cases has been healed only fourteen months. It is well known that a late recurrence is apt to take place after a complete cure of skin cancer. However, up to this time in cases treated by carbon dioxide the scars are almost invisible, and there is not a trace of infiltration of the skin or other change pointing to a recurrence.

In such cases as those which the author has treated, this method seems to be the proper one in superficial forms of cancer because of its harmlessness, simplicity of use, possibility of exact dosage, relative painlessness, quick action, ideal cosmetic results, and its inexpensiveness. Of much greater significance is it that this treatment is suited to the vast majority of cases because they are of a superficial type, and that the number of deeply infiltrating forms will be reduced because every physician is thus enabled with the greatest ease to cure skin cancer in its beginning.

WHY IS DIRECT TRANSFUSION OF BLOOD OFTEN A FAILURE?

Soresi (*New York Medical Journal*, Nov. 9, 1912) questions as to why this method is a failure, holding that if properly employed it should give splendid results. Many failures are due to faulty technique. Even with perfect technique there may be thrombus at the point of anastomosis. With blood flowing freely from the artery of the donor into the vein of the recipient there would not be any thrombus. It is held that to assure free flow of blood from donor to recipient the blood of the donor should flow without any obstacle directly into the heart of the recipient. This is accomplished by using the external jugular vein of the recipient. The best technique is that which uses a vein for both donor and recipient. Any good-sized vein of a limb can be used for the donor. The external jugular vein should be the one preferred for the recipient, as it is of good size even in children, and always very accessible. It is of greatest importance that the affinity of the blood of both donor and recipient should be known. Direct transfusion should be resorted to only with the intention of giving a patient those morphological elements and active principles which can take up immediately (although but temporarily) the burden of the general metabolism impaired by some pathological condition.

The author concludes that transfusion should not be resorted to only when the patient is *in extremis;* surgeons should train themselves on animals in conservative surgery of the blood-vessels before attempting transfusion in human beings; vein-to-vein method is to be preferred, and the use of a vein of the neck of the recipient is the only physiologically correct method to be adopted, except when not suitable during surgical operations. In hemorrhages there must be a distinction between hemorrhages which can be completely checked and hemorrhagic diseases; in the former saline solution should be administered immediately as first resort, and during or before transfusion; in the latter, transfusion should be resorted to before other liquids are introduced into the system, because the blood is used as a hemostatic and should not be diluted; in the greatest number of hemorrhages saline solution is sufficient to save the patient, and transfusion should be resorted to only when the surgeon thinks that the hemopoietic organs of the patient would be unable to supply, in a reasonable time, the morphological elements indispensable to life. In diseases in which the blood is load-

ed with poisonous products, transfusion is very useful, provided that the central nervous system is not too severely injured and blood is let out during or before transfusion is resorted to.

Transfusion is a great help to patients who are considered bad surgical risks, and it must be performed during the operation. A vein for both donor and recipient should be used, anastomosing the distal part of the donor's vein with the proximal part of the external jugular of the recipient. In this way the radial artery is saved and it is easier to find a donor. Obviously there may be cases in which it is advisable to use the radial artery of the donor, and transfusion will be very satisfactory, but, when possible, vein to vein should be used, always preferring the external jugular for the recipient.

END RESULTS OF RADICAL OPERATION IN TUBERCULOSIS OF THE KNEE-JOINT IN CHILDREN.

BRANDES (*Deutsche Ztschr. f. Chir.*, Bd. 117, H. 5-6) says that in the space of a little over eight years 27 radical operations were performed on 26 children on account of tuberculosis of the knee-joint; of these 19 were resections according to the method of Helferich, 4 arthrectomies, and 4 amputations. In almost all of these cases a personal investigation was made following the operation to determine the results; of the cases of resection, in three instances the second operation was necessitated on account of flexion-contracture; all the other cases of resection showed good results; the local inflammatory process was permanently cured by the operation. Fourteen of the resected cases show solid osseous ankylosis at a suitable angle, and all the patients are in a condition which enables them to pursue an occupation. These results were obtained through the bow-form resection of Helferich combined with definite long-continued rational after-treatment. Resection is resorted to in children if the conditions are such as to permit of the proper after-treatment, which can be carried out only when the cases can be controlled for years following the operation. As a preventive of the ever possible flexion-contracture the secondary resection of the flexor tendons is advised.

The first treatment of tuberculosis of the knee-joint in children is always conservative. Resection as an early operation with the design to shorten the time of treatment has no justification in children; but in cases in which a rational long-continued treatment is without result, as in cases of secondary infection with abscess or fistula, multiple tuberculous processes, the development of abnormal position of the bone, or great loss of body weight and condition, radical operation should be performed without further hesitation. The bow-shaped resection of Helferich has proven to be the most suitable and to give the best results. Amputation is justified only in cases in which a longer operation would threaten the life of the patient.

NEPHRECTOMY WITHOUT DRAINAGE FOR TUBERCULOUS KIDNEY.

W. J. MAYO (*Surgery, Gynecology and Obstetrics*, November, 1912) states that following nephrectomy for tuberculosis of the kidney it was formerly his practice to drain the cavity from which the kidney was removed, especially if tuberculous material had escaped into the wound. A sinus which was slow to heal often formed, particularly in the debilitated patient in whom the second kidney was somewhat involved. In many instances mixed infection with suppuration occurred and undoubtedly was a contributing factor in the ultimate failure to cure the patient.

About two years ago a case of this type came under the writer's observation. In operating, a large accumulation of whey-like fluid was found outside of the kidney, and after removing the kidney, treating the ureter, and cleansing the wound as well as possible, he filled the cavity, which held more than a quart, with normal salt solution and closed the wound without drainage. The patient was greatly debilitated and had a moderate lesion of the remaining kidney.

Primary union and a prompt recovery followed. The compensatory hypertrophy of the remaining kidney evidently furnished sufficient hyperemia to destroy such infection as may have existed within its substance. Since then, in operating upon these cases, if the wound be soiled with tuberculous material the cavity is cleansed with normal salt solution and closed without drainage. The writer believes the normal salt solution enables material which is infected with tubercle bacilli in the attenuated state to be safely absorbed because diluted and absorbed quickly before there is an opportunity to establish favorable cultural conditions which would increase the virulence of the organisms. The normal salt solution is absorbed in the wound as rapidly as it would be if given in the usual manner subcutaneously.

In cases in which the tuberculous material has not escaped into the wound and the patient is otherwise in good condition, there is, of course, no necessity for using the salt solution, but drainage should not be employed.

Every effort should be made to remove the tuberculous kidney without the escape of its contents, and to secure this result an adequate incision is essential. The patient is placed on the sound side with a considerable degree of elevation of the loin. A vertical cut frees the twelfth rib from its posterior attachments and a long transverse incision mobilizes the lower wall of the thorax. In this manner a large kidney can be removed with ease.

In some instances tuberculous material will have escaped spontaneously into the perirenal tissues before operation, and in such cases it will not be possible to remove the organ without distributing more or less of the tuberculous infection throughout the cavity of the wound. It is in these cases particularly that drainage has resulted so unfortunately and has been an unnecessary procedure.

The stump of the ureter is a source of possible infection in the wound, and many surgeons either remove the kidney and ureter completely at the primary operation, or they suture the stump of the ureter to the skin for the protection of the wound.

For a number of years it has been Mayo's practice to inject 10 to 20 minims of carbolic acid (liquid 95 per cent) into the ureter. This is distributed down through the lumen, and a ureter thus treated will rarely give trouble later.

Mayo is convinced that in draining these cases he made a mixed infection possible which was responsible for many of the postoperative conditions heretofore believed inherent in the process itself.

Experience has taught him that drainage following operations for tuberculous lesions within the abdomen is unnecessary and usually followed by sinus and fistula; so also has he learned that draining the cavity from which a tuberculous kidney has been removed gives rise to complications which delay or prevent healing, and which may lead to the death of the patient some months later.

POLYCYSTIC KIDNEYS TREATED BY MULTIPLE PUNCTURES.

ROVSING (quoted in *Journal d'Urologie*, May, 1912) reports three cases of polycystic kidney treated by this method, with excellent results. The kidneys having been exposed by the usual lumbar incision, both the superficial and deep cysts are punctured, whereupon the organs are replaced in position and a gauze drain is applied. As a result of this treatment in all three cases the wound healed promptly, the urine increased in quantity, and the albumin disappeared. Moreover, the patients were greatly relieved of their pains. The first case lived three years. The second was still living and well two years after the operation. In the third the time was not given. Rovsing regards his operation only as a palliative one, and the facts that the symptoms at once are lessened, that the renal function is reëstablished in a great measure, that there is no operative shock, and that the intervention is both simple and safe, commend it. The betterment is attributed to decompression resulting from the puncture of the cysts.

PRACTICAL APPLICATION OF SUTURE OF THE BLOOD-VESSELS.

KOSTIE (*Wiener klinische Wochenschrift,* tome xxv, No. 19, 1912) gives a brief but excellent résumé of the attitude of the profession toward this line of surgical activity. As to technique, that formulated by Carrel is generally admitted to be the best. Regarding suture of veins, it is held that this has yielded excellent results when it is practicable, but Lejars is quoted to the effect that a good ligature is very much better than a poor suture, or even one concerning which there may be reasonable doubt. The results in aneurism are excellent, Matas's method being regarded as the best. It is noted, however, that in thirteen cases of reconstruction aneurismorrhaphy there have been four recurrences. Incision in blood-vessels for the extraction of clots has given uniformly bad results, this applying to Trendelenburg's procedure for the relief of pulmonary embolism, not one single successful case of this having been reported.

The saphenotibial anastomosis formulated by Delbet as a treatment for extensive varices of the lower extremity has been extremely successful. Hesse and Schaack have had twenty-five successes and one death, the latter from infection. This seems to be a method of treatment thoroughly to be recommended.

As to the arteriovenous anastomosis in the treatment of dry gangrene the results have been almost universally unsuccessful. The mortality has been high, but one operator claiming satisfactory results. In the treatment of ascites the Eck fistula is commended, from the philosophical standpoint, but is regarded as too difficult. Kostie believes it is better to implant the large superior mesenteric vein into the cava. This he has done.

Other vascular operations are the saphenoperitoneal anastomosis for the purpose of drainage of the ascites, and Payr's method of draining the cerebral ventricles into a large vein of the neck. Of the eighteen cases thus operated on by Payr, four are reported as successful. The transplantation of organs has given uniformly successful results. Theoretically it is proposed for the relief of an aneurism adapted to this purpose to resect the sac and to implant a section of the internal jugular vein.

TECHNICAL POINTS IN PROSTATIC ENUCLEATION.

SQUIER (*Surgery, Gynecology and Obstetrics,* November, 1912) calls attention to the work of Tandler and Zuckerkandl, who prove that enlargement always begins in the glandular tissue situated around the urethra behind the verumontanum.

The median lobe is now known to be a distinct and definite division in the glandular development of the prostate, and is so constant a factor in the production of urinary obstruction that it is time that its full significance be recognized.

Fully to appreciate the phenomena of prostatic hypertrophy, a knowledge of certain embryologic phases in the development of the gland is essential. As early as the third month of intrauterine gestation, the mesoblastic tissue around the lower ends of the Mullerian and Wolffian ducts becomes thickened, in the situation of the wall of the primitive urethra. The epithelium of the sinus urogenitalis throws off three groups of buds on each side. Two of these are on the dorsal aspect of the urethra, beginning as one mass and later dividing into a cranial and a caudal group. One is on the anterior aspect of the urethra.

The anterior group atrophies at an early period and is usually absent in the adult. These buds consist of epithelial tissue lying in a mass of mesoblastic tissue and do not acquire a lumen until after birth.

As the prostate develops to its final normal state, specialization takes place in these different groups of glandular tissue so that definite zones appear. If the musculoconnective tissue be dissected away from the gland, separate lobes may be differentiated as follows: A small anterior group; two lateral groups; an interposed

median lobe; and a posterior lobe or commissure.

The lobules of the different groups have fixed points for the emptying of their excretory ducts into the urethra, and for this reason the designation of lobes to the various groups may be given.

The excretory ducts of the anterior lobe empty into the prostatic urethra on its anterior wall opposite the verumontanum, the ducts of the median and lateral lobes on the floor and sides.

The prostate is penetrated by the urethra and the ejaculatory ducts. At the base of the prostate these canals are separated by the median lobe, but are united anteriorly at the situation of the veru.

In the majority of cases of prostatic enlargement, this wedge-shaped mass of glandular tissue, the median lobe, is the starting-point of hypertrophy and becomes the main factor in the production of urinary obstruction. The floor of the prostatic urethra is in relation to this lobe from internal meatus to colliculus. Anterior to the colliculus the prostatic urethra is in relation to the posterior lobe or commissure. The urethra is not connected to the prostate gland by any ducts in front of the colliculus.

In regard to the morphology of prostatic hypertrophy Runge and Chiari, in their recent research, agree that in the largest percentage of enlarged prostates the process is an adenomatous overgrowth, independent of inflammation and neoplastic in character.

Another fact is pertinent, that there is no anatomical capsule to the prostate, when considered from a surgical view-point. The line of cleavage which simulates a capsule during operative removal is merely a layer of compressed glandular tissue, at the periphery of the enlarging lobe. Such being the case, the portion of the prostate removed during operation is the adenomatous overgrowth of the centrally situated secreting glandular zones; the lobes of the prostate which are intimately associated with the urethra through the prostatic ducts, namely, the lateral and median lobes.

Further, during the process of hypertrophy the prostate, from being an extravesical organ, becomes an intra- and extravesical one. The internal sphincter of the bladder has changed its position from apposition to the base of the prostate to one encircling it.

The enucleation which Squier advocates is based upon this change in position of the internal sphincter muscle, and allows of restoration to its normal position with preservation of its integrity.

The old method of enucleating the prostate through intravesical incision in the mucous membrane over the most prominent hypertrophy carries with it the probable destruction of the internal sphincter, the danger of severe hemorrhage from opening into the plexus of Santorini, and almost certain injury to the ejaculatory ducts.

TREATMENT OF GONORRHEA.

HARRISON and HAROLD (*Journal of the Royal Army Medical Corps*, October, 1912) state that as the result of their efforts at treating gonorrhea in such wise that it shortens the stay in the hospital, they have no brilliant success to record. They expressed the opinion that the use of gonorrheal vaccine has some effect in preventing the complications of the disease; also that the use of atropine has some effect in preventing epididymitis. This is based on Schindler's observation to the effect that when the posterior urethra is inflamed or irritated, either directly or through massage of the prostate, reverse contraction of the involuntary muscle fibers of the vas occurs. This is the mechanism by which gonococci lying in the posterior urethra are carried to the epididymis, and explains how it is that so many cases develop epididymitis a few hours after a metal instrument has been passed along the inflamed urethra. Schindler further notes that the hypogastric plexus is paralyzed by administering atropine, either hypodermically or in the form of suppositories, and that this paralysis prevents the reverse peristalsis.

One case is reported in which a patient who had suffered from six attacks of epi-

didymitis, each immediately following any attempt to massage his seminal vesicles, or to administer local treatment to his urethra, an hour following the rectal administration of the atropine suppository went through a thorough prostatic and vesicular massage without the faintest after symptom. The authors of the paper state that they have since administered atropine suppositories 1/75 of a grain twice daily to each of the gonorrheal cases, and attribute to this some reduction of the incidence of epididymitis as well as the marked freedom of the patients from painful erections and chordee. As a result of careful trial of contrasted methods Harrison and Harold state that they have obtained the quickest apparent recoveries from the following procedure:

Irrigation of the urethra three times a day with large quantities of weak permanganate of potash solution (1 in 3000 to 1 in 4000) till the discharge has considerably diminished. Then

Injection of zinc and copper solution after each irrigation till the discharge has practically ceased; and finally,

Injections of protargol jelly in place of the zinc and copper after massaging the prostate and irrigating the urethra.

Atropine suppositories (1/75 gr. in each) twice daily.

Confirming the observations of others, the authors think it important for the prevention of epididymitis that the following precautions should be observed:

(*a*) The irrigator should not be more than five feet above the urethra; (*b*) the temperature of the irrigating or injection fluid should not be greatly above or below that of the body; (*c*) strongly irritating fluids should not be injected; and (*d*) the patient should rest in bed for the first week, and duty should be light till the discharge has ceased for a few weeks. Pack-drill immediately on leaving the hospital seems to be a very potent factor in producing epididymitis. It is worth while taking considerable pains to prevent epididymitis, since these cases are by far the most intractable gonococcus carriers and the most prone to relapse, so that they spend a considerably longer time in hospital than uncomplicated cases of gonorrhea.

Regarding the vaccine therapy of gonococcal infections, opinions are divided. Probably most workers agree that it is generally useful in the complications of gonorrhea, but few consider it of any value in gonorrheal urethritis. Harrison and Harold believe that gonococcal vaccine may usefully be employed not only in the treatment of complications but in ordinary cases of gonorrhea. Considering the beneficial effect of vaccine on complications of gonorrhea it is reasonable to suppose that if the antigonococcal substances in the blood can be increased gonococci will be destroyed as soon as they come under their influence, and complications will be nipped in the bud. Further, in a patient whose resistance to the gonococcus has been raised the microörganism cannot penetrate so deeply below the surface of the urethral mucous membrane as in other cases, since in doing so it would come within the sphere of influence of the blood. In other words, the inflammation would be a more superficial one.

In a series of cases in which the authors administered gonococcal vaccine with the object of preventing complications, the incidence of these was less than half the number which occurred in a similar series treated with vaccine. Incidentally it was also noted that the cases treated with vaccine did not suffer from periurethral thickening to the same extent as the others.

The writers think that it is useful to continue vaccine treatment after the patient has left the hospital with a view of preventing relapses. Even failure to find gonococci after three tests is not a certain indication of complete absence. For this reason it is quite possible that all the cases of gonorrhea discharged from hospital are gonococcus carriers, hence they should be carefully watched for some weeks. Out of 115 patients discharged from hospital 91 attended for vaccine; of these two relapsed, both being men who had suffered from epididymitis, and one a patient who was specially discharged for private reasons before the inflammation had properly subsided. Out

of 24 who could not attend, six relapsed, three being old epididymitis cases. It seemed, therefore, as if continued treatment with gonococcal vaccine had been beneficial in preventing relapses.

HORMONAL IN THE TREATMENT OF ACUTE AND CHRONIC INTESTINAL PARESIS.

PILCHER (*New York State Journal of Medicine,* November, 1912) reports cases in which the course of convalescence was so obviously and certainly influenced as to leave but little room for doubting that the administration of this substance, hormonal, was responsible for the favorable outcome.

Zuelzer in 1910 recovered from various intra-abdominal organs an extract which, when injected, caused an increase in the peristalsis of the bowel. This substance, to which he gave the trade name of "Hormonal," was found to be present in the spleen in greatest quantity. The preparation is administered intravenously, in doses varying from 10 to 40 Cc., according to the age of the patient and the severity of the paralytic phenomena, the basilic vein of the arm having been found to be most convenient for use. Hormonal should be warmed to 100° F. and be allowed to enter the vein at body temperature, the injection being made very slowly. In several of the cases there was noted immediate flushing of the face and pounding of the head. The temperature and pulse are frequently raised, the former as much as to 103°. These phenomena are, however, quite evanescent and are much more likely to occur at the time of administration in those critically ill than in those who apply for the relief of atonic or habitual constipation. The symptoms of collapse or cyanosis which may supervene may best be met by camphor injected subcutaneously.

In the cases of chronic constipation, comprising knowledge of a series of some thirty odd patients, Pilcher notes that the results have been in the majority satisfactory. The intravenous method of administration is much more certain than the intramuscular, and large doses up to 40 Cc. seem to be more efficient than small ones. The effectiveness of this preparation is greatly synergized by giving a half-ounce of castor oil at the time of injection.

Animal injection showed that the peristaltic hormone causes true peristalsis, in contrast to the spastic contracture following eserine. Several patients remarked a more or less continuous peristaltic unrest for as long as five days after the injection of a larger amount, but without any cramping sensation.

The first case, operated on for extensive membranous pericolitis and secondary chronic inflammation of the appendix, suffered from gastroenteric paresis beginning twenty-four hours after operation. The second day after operation hormonal was given; this was followed by flatus on the next day; two days later by bowel movement.

The second patient, following an operation for ileovesical fistula, developed retrograde peristalsis, the result of a paralytic ileus low in the small intestine. This was the second day following operation, and was complicated by acute dilatation of the stomach, the vomiting quickly becoming fecal and being unrelieved by lavage. Within six hours after the administration of 40 Cc. of hormonal gas and feces were passed per rectum, and continued to be passed regularly until discharge. The vomiting stopped immediately and the patient had an uneventful convalescence. Eserine had previously been given without beneficial effect.

In a third case, a girl, aged ten years, suffering from acute gangrenous appendicitis with perforation and free pus, after an uneventful postoperative twenty-four hours, developed gastroenteric paresis. Ten cubic centimeters of hormonal was injected intravenously on the eighth day with the patient nearly moribund and with a practically imperceptible pulse. There was an immediate cessation of the vomiting. Flatus was expelled five hours after injection; daily stool subsequently, and an uncomplicated convalescence.

The fourth case, one of gigantic twisted sigmoid, received five hours after operation 20 Cc. of hormonal. Fifteen hours later there was normal defecation without enema or catharsis, and complete and permanent disappearance of all distention.

The fifth case, suffering from progressive stenosis of the pylorus, became distended upon the third day, vomited, and suffered from hiccough, unrelieved by lavage. The fifth day 40 Cc. of hormonal was injected intravenously without untoward reaction. Five hours after injection a large normal bowel movement was effected, with a rapid subsidence of the previous distention. The hiccoughs, however, were unrelieved. Peristalsis continued active throughout the next day, but the patient gradually sank from uncontrollable hiccoughs, which were not the result of hormonal, as they were manifest previous to the injection.

TREATMENT OF ERYSIPELAS BY TINCTURE OF IODINE.

BINET (quoted in *Practitioner,* November, 1912) reports the results of a series of cases of erysipelas treated by swabbing over the affected area with tincture of iodine. He points out that the disease is a dermatitis, and consequently that if the streptococci, which swarm in the compact meshes of the skin, are to be destroyed, it is necessary to use an antiseptic which can be absorbed. Iodine answers this want, but its absorption varies considerably, according to the conditions under which the swabbing is made. Faults of technique are responsible for the most part of the failures of this method. It is absolutely necessary to follow up the application of the antiseptic with a dressing composed of sterile compresses or of simple sheets of wool. The tincture of iodine dries up and forms a pellicle on the surface of the epidermis. It is therefore necessary also, when a fresh swabbing is required, to begin by removing this iodic pellicle, and clean the epidermis with either absolute alcohol or glycerin. The skin must be quite dry before the iodine is applied.

To avoid excessive concentration, Binet dilutes the tincture of iodine with alcohol, and adds a small quantity of guaiacol.

℞ Guaiacol, gr. xlv;
Tincturæ iodi,
Alcohol absolut., ana ℥j.
Misce.

The guaiacol is absorbent, analgesic, and antithermic. The first swabbing with iodine is made freely over the whole surface of the erysipelatous area, even going beyond its borders to prevent serpiginous invasion of the infection, and an impermeable dressing is applied. The next day but one, and each subsequent day, the swabbing is repeated. After the second or third day a very apparent change is produced in the affected area. Instead of edematous tissues, tight and shining, is found, on the contrary, a skin which has passed into a condition of subsidence. The epidermis seems shriveled and dried up; sometimes it has cracked, laying bare in narrow fissures the underlying dermis. Toward the fifth or sixth day peeling occurs, and then the swabbing must be stopped, otherwise the caustic action of the iodine will produce scars. With the improvement in the local condition the general condition recovers.

METHOD OF CONTINUOUS STOMACH DRAINAGE FOR CASES OF POST-OPERATIVE DILATATION, INTESTINAL OBSTRUCTION, AND PERITONITIS.

BASSLEY (*American Journal of Surgery,* October, 1912) observes that there are three kinds of cases in which the rather constant use of the stomach-tube is called for.

Cases of postoperative gastroduodenal dilatation. In these the frequent cleansing of the stomach is essential.

Cases of intestinal obstruction, in which the cleansing of the stomach minimizes the degree of toxic absorption, so that the case is a better operative risk when the laparotomy is performed.

Cases of septic peritonitis, in which the gaseous distention of the peritoneal cavity and the paresis of the gut crowd the stomach into the left dome of the abdomen. In

these cases to allow the drinking of water in the large amounts demanded by these patients would cause an increase of the intraperitoneal pressure, but to give them cool water by tube which can be immediately drained out again is a most humane act.

In each of these three kinds of desperate cases the suffering of the patients usually is intense, and the frequent passing of a stomach-tube adds to their distress. The method described by the author is comfortable and painless, obviates the frequent passing of the stomach-tube, and has the advantage of having a tube always *in situ* for drainage or delivering of fluids into the stomach.

The apparatus consists of a small-calibered stomach-tube made sufficiently stiff for easy delivery into the organ by way of the nose, this tube in size being 23 F. or 15 A. and 150 centimeters or 60 inches long. A marking on the tube 61 centimeters or 24 inches from its lower end shows when the latter is in the stomach and lying well along the greater curvature when this marking is at the nostril. The openings are like those of the Boas tube, namely, two in number, one on either side and arranged one above the other, both being velvet-eyed, and the extreme end being closed. A rather thin-walled, small-sized bulb is supplied to cleanse the tube should it become obstructed, and there is a length of tubing beyond it to give further length for siphonage and attachment to a glass funnel instead of rubber, to give weight to the lower end, so that it always remains submerged in the water in the basin.

The introduction is made with the patient on the back. The tube, lubricated with glycerin, is passed down through the nostril on the side of the bed at which the basin stands. When the proper level in the stomach is reached for easy ingress and egress of fluids, the tube is bound in place by means of a tape or string, making a turn around the head, over the ears, and tied at the occipital region; or by a short tape with plasters on the sides of the face to hold it. The outside length of the apparatus permits of a reach to a basin of water, the upper level of which should be situated about a foot below the back of the patient or on a level with the mattress; a siphonage to the floor can easily be secured by adding a further length of tubing from the bulb to the funnel, but this is rarely necessary.

It is surprising how comfortably this apparatus is borne. The majority of patients will lie perfectly at ease, can talk and even swallow, and not a few who have experienced the benefit from the frequent lavages possible by it—every fifteen minutes if necessary—will fight against its removal.

Taking the tube out for cleaning is not essential during the short time its use is called for. When, however, there is doubt as to whether the stomach contains solid particles of food, it is wise to wash the organ in the usual way with an ordinary larger-sized stomach-tube before this apparatus is installed. Fluid foods and medications may be introduced through the tube, a stop-cock on it being necessary for their retention. In many cases when drainage is sought for, just to raise the funnel out of the water is sufficient to drain the organ without the addition of water through the tube first, and it is not unusual to see fluid from the stomach trickling down the sides of the funnel into the water as fast as it had accumulated in the stomach.

In peritonitis cases, cool water may be delivered into the stomach to allay the thirst, and quickly drained out again.

THE TREATMENT OF INTERSTITIAL KERATITIS BY SALVARSAN.

VANDEGRIFT (*Medical Record,* Oct. 26, 1912) treated three pronounced cases of interstitial keratitis by salvarsan, which was introduced in an oil vehicle intramuscularly. He notes that salvarsan worked so quickly that little connective tissue had time to form. In each case the corneal infiltrate even after subsidence of all the inflammatory signs had been absorbed to a much greater degree than could be hoped for with mercury. We do not expect to absorb the old scars of a past interstitial keratitis with salvarsan or by any other treatment,

but if salvarsan is used when the least trace of acute symptoms is present it will not only check the inflammation but will absorb the infiltrate and prevent further deposit of connective tissue.

POSTOPERATIVE EMBOLISM.

WILSON (*Annals of Surgery*, December, 1912) notes that the mortality from embolism, based on over 65,000 operations, is 0.07 per cent, or one death in every 1352 operations. From a study of the cases he has collected in literature the following deductions are drawn:

For the first ten years in the history of the hospital, during which time 6000 major operations were performed, there were no recognized deaths from embolism, while since that period one case in every 1213 has so terminated. Neither the surgeons, the anesthetists, nor head nurses have been materially changed on the staff in that time, nor yet has their method of procedure been materially varied. The anesthetic has been ether since the foundation of the hospital, and always it has been given in the smallest amount possible to maintain anesthesia for only sufficient time to permit the rapid completion of the operation.

The only changes coincident with the increase are:

In the nature of the operations. During the first ten years the number of operations on the stomach, gall-bladder, lower bowel and prostate, and of hysterectomies, was small as measured by that of subsequent years. During the last twelve years a very high percentage of operations has been on these organs, and it is subsequent to operations on these organs that most of the fatalities have occurred.

The condition of the patient coming into the hospital and to the operating table has materially changed since the first decade of the hospital's history. During the first ten years of the clinic a very large proportion of the surgical cases were drawn from the general family practice of the members of the hospital staff and were operated on before they were *in extremis*. During the last twelve years, however, the surgical material has consisted almost entirely of referred cases, with an ever-increasing percentage of those of the "last resort" type, and it is in this class of cases in which most of the emboli have occurred.

The writer generalizes as follows:

Following operations, particularly on the blood-vessels, alimentary canal, and genito-urinary organs (both male and female), from 1 to 2 per cent of all cases give more or less distinct clinical evidence of emboli, above 70 per cent of which are in the lungs.

As near as can be observed from the incomplete and necessarily inaccurate data at hand, about 10 per cent of postoperative emboli which give clinical symptoms of diagnostic significance cause sudden death.

Where post-mortems are made on cases of fatal postoperative embolism, the source of the emboli can be definitely determined as venous thrombosis in about 80 per cent of the cases, as cardiac thrombosis in 10 per cent of the cases, while 10 per cent are scattering or undeterminable.

Though there must be more or less formation of venous thrombi at the site of every extensive surgical operation, yet it is probable that the long, loosely-formed thrombi from medium-sized veins are those chiefly concerned in embolism, and especially in fatal embolism.

When large, loose thrombi are once formed in a resting patient any unusual exertion or change of position may cause a dislocation of large masses, which become dangerous emboli.

The most important factors concerned in extensive postoperative thrombosis are as follows:

Rupture of the intima by cutting, ligating, or clamping causes a rapid deposit of a fibrinous thrombus, which, however, is normally confined to an area close to the injury. Over this the endothelium quickly extends, covering the thrombus within a few days. It is probable that such small terminal thrombi, when endothelial-covered, rarely, if ever, become dislocated and form emboli. There can be no question, however, but that the constantly present small

thrombi in injured vessels form a nidus for the subsequent development of large, loose thrombi through the activity of other factors.

After operations the rapidity and volume of the current in the veins are materially lessened for a considerable distance proximal to the first incoming venous radicles. Furthermore, the patient is usually kept quiet in a recumbent posture, thus reducing the force and rapidity of the heart's action and causing a general slowing of the blood current throughout the entire vascular system, including the heart. When the blood-stream is slower, or when a part of the vascular system is incompletely filled, a disarrangement of the blood-cells occurs, the white cells and platelets reaching the periphery of the stream and tending to attach themselves to the vascular walls. In addition to this, in the presence of obstacles or marked expansions, a whirling motion, as pointed out by von Recklinghausen, may be set up which further tends to the retardation of the blood-stream and to the deposition of its elements as thrombi.

While autogenous toxic substances are not definitely known, their presence is assumed from their apparent action in the severe secondary anemias of hepatic diseases. It has been suggested that this factor may account for the high percentage of postoperative emboli following operations on the gall-bladder. It has also been suggested that toxic substances reaching the circulation from extensive carcinomas may in this manner cause marked postoperative thrombosis. In this connection, however, we must not forget the rarity of postoperative emboli following extensive operations for mammary carcinomas.

That bacteria and their toxins are the chief causes of extensive postoperative thrombosis, as well as thrombosis occurring in the course of infectious diseases, is now fairly well established. By no means all postoperative thrombi occur in the field of operation. Phlebitis and a resulting thrombus are all too frequent. The last decade has seen a very marked extension of our knowledge of the frequent infection of the blood-stream by bacteria. This is particularly so in chronic diseases with local infection. It is readily conceivable that bacteria within the blood-stream may have their virulence sufficiently reduced to prevent their setting up a local phlebitis until aided by operative traumatism of the intima, postoperative slowing of the blood-current, or, perhaps, even the effect on the leucocytes of a prolonged general anesthetic. Certain it is that many thrombi, which we were formerly wont to regard as "marantic," we have now come to know are of infective origin. In this connection the postoperative formation of cardiac thrombi (and therefrom pulmonary or cerebral emboli) on small areas of endocarditis is worthy of note. When a polypoid thrombus has been swept off from the wall of the heart its remaining ragged base may be overlooked without the most careful search at autopsy. While emboli from such a source are by no means common, the possibility of their occurrence must not be forgotten.

The above-mentioned factors must determine whatever precautionary measures may be taken for the prevention of postoperative thrombosis and embolism. The following suggest themselves:

The reduction of vascular traumatism to a minimum at operation by the conservative occlusion of vessels, and the provision for free drainage to prevent later extensive external pressure on vessels.

The encouragement of very early free movement on the part of the patient as soon as the nature of the operation and danger from hemorrhage will permit, though it must be confessed that the reported results from various clinics of "getting the patient up early" are unconvincing as to the reduction of postoperative embolism. If it can be done early enough to prevent the formation of extensive thrombi, it would seem to be most desirable. If, on the other hand, the condition of the patient's blood, either from anemia or bacteriemia, is such as to lead to the suspicion that extensive thrombi may have already been formed before it is possible to permit free movement on the

part of the patient, it would seem the part of wisdom to keep the patient as quietly as possible in a recumbent position to prevent the dislocation of the already formed thrombi. Large, loose thrombi, once formed, are readily dislocated by a relatively slight exertion on the part of the patient.

The preoperative administration of drugs to increase the coagulability of the blood, as, for example, calcium salts in hepatic disturbances, is of questionable value, so far as thrombosis and embolism are concerned. It has not yet been shown that the presence of calcium salts in the blood renders it less liable to form thromboses, though it may be true that their presence induces the formation of a more dense clot.

Measures looking toward the reduction of bacteriemia are certainly indicated as a preoperative precaution for the prevention of thrombosis and embolism. Where possible, the preliminary destruction (as with a cautery) of local foci of infection should be considered. When the invading organism can be isolated and identified, a preliminary vaccination is suggested. Indeed, it is probable that in some instances such a preliminary vaccination might prove of material benefit to the patient in avoiding postoperative infections other than those of the vascular system.

THE OPERATIVE TREATMENT OF POTT'S DISEASE OF THE SPINE.

WILKIE (*Edinburgh Medical Journal*, November, 1912) observes that the treatment of Pott's disease has been rest and mechanical support for the diseased vertebral column. That this treatment is attended with much success none can deny, but that it still leaves much to be desired is equally certain. The conservative methods in common use, while they limit motion, do not secure absolute immobilization of the diseased joints, nor do they entirely relieve pressure on the involved vertebral bodies. Accordingly it is necessary to continue treatment for long periods of time, and in almost every case the deformity increases as the cure becomes complete; this is especially true with disease in the dorsal region. The method of forcibly correcting the deformity introduced by Calot has after an extensive trial been practically abandoned, for it has been abundantly demonstrated that the capacity for bone formation between the separated vertebral bodies is quite inadequate to fill the gap caused by straightening the spine.

During the past few years considerable attention has been directed to operative measures which have been designed for the double purpose of shortening the duration of treatment and preventing deformity.

All the operative methods which have been devised have been based on the fact that each vertebra is a lever, having a long arm, the laminæ and spinous process; a short arm, the body; and a fulcrum, the articular processes. If we immobilize the spinous processes and laminæ of adjacent vertebræ not only will the corresponding bodies be given absolute rest, but they will be prevented from collapsing.

The first operation for the purpose was suggested by Hadra. He proposed to bind the spinous processes of the diseased and adjoining healthy vertebræ together with figure-of-eight turns of silver wire. More recently Lange recorded a very successful case in which he immobilized the diseased vertebræ by introducing through small incisions at either side of the spines, splints of tin-plated steel wire, which he attached to the spinous processes by silk ligatures.

In 1911 Hibbs described an operation in which the spines and laminæ themselves were used to produce a firm ankylosis of the posterior parts of the vertebræ. In Hibbs's operation an incision is made along the spinous processes, and the interspinous ligament is split and separated with the periosteum to either side. With a chisel the base of the spinous process of the sound vertebra above the diseased area is cut through, and this procedure is repeated on the spinous processes of the vertebræ involved by the disease, including finally that of the sound vertebra below. Each spinous process is then displaced and tilted down-

ward, so that while a part of its base is still in apposition with the surface from which it has been displaced, its tip is brought into contact with the upper part of the area, from which the spinous process of the vertebra below has been separated. In addition, the periosteum of the laminæ is separated, and a small piece at the lower border of each lamina is chipped off and turned downward along with the loosened periosteum till it makes contact with the lamina below. The tissues are then sewed over the fragments. A steel brace is applied, and absolute rest in bed is continued for from eight to ten weeks. During the next few weeks sitting is permitted, and at the end of the twelfth week walking is allowed, the brace being worn for another month. In Hibbs's first case a radiogram taken three months after operation showed consolidation of the four spinous processes.

In a later report the same writer records 47 cases treated by this operation. Twenty of the patients had been going about without support for from three to twelve months, and had shown no symptoms of disease nor any increase in deformity. A rapid improvement in general health was observed in most cases, especially in those operated on early in the disease. The cases most suitable for operation are those in which the disease has not progressed so far as to have led to any marked degree of deformity.

Albee describes an operation which he performs for fixation of the diseased portion of the spine in Pott's disease. He transplants a long, bony splint from the shaft of the tibia, inserting and securing it in a furrow made by cleaving the spinous processes of the affected vertebræ and those of a healthy vertebra above and below them. He maintains that his operation has the advantage over that of Hibbs in that immediate immobilization is secured, and that as the long arms of the spinal levers—the spinous processes—are not broken across, greater purchase is obtained in preventing the collapse of the vertebral bodies. In a later report he states that he has performed this operation with success on 47 patients.

Whitman records a case in which he applied two bony splints transplanted from the tibia along the sides of the spinous processses of the affected vertebræ in a case of Pott's disease. He considers that operative treatment is specially indicated in early cases of the disease in the thoracic region.

In the discussion on this subject at the annual meeting of the American Medical Association in June, 1912, Huntington, speaking from the point of view of the anatomist, remarked on the frequency with which he had found fusion of two or more of the lumbar or lower dorsal vertebræ in skeletons otherwise healthy, and pointed out that the operation of Hibbs invaded a territory in which the natural tendencies were all in favor of a good result. All agreed that the results which have so far been obtained justify an extended trial of these operative measures.

NON-OPERATIVE TREATMENT OF BREAST CANCER.

STROBELL (*American Journal of Surgery*, November, 1912) after observing that 60 out of every 100 selected cases operated upon by our best men will be dead or dying within three years after the excision operation, by recurrence from the disease, states that there are 25,000 cases of cancer of the breast in the United States to-day. He observes that recurrence is almost invariably in the line of incision and suture and that operative manipulation favors reinfection. He therefore advises what he calls chemical dissection. As to the technique, this is as follows:

First and foremost the patient should be cared for by a trained surgical nurse exactly as in any surgical case, keeping accurate records of temperature, pulse, respiration, and the functionating of the eliminating organs. The nurse should be exceedingly careful to confine the action of the chemic agent to within the limits so carefully set for it. This will require vigilance and the sufficiently frequent change of fresh, dry absorbent cotton—mainly below the breast—to prevent the freely draining fluids from

coming in contact with the skin, or even to moisten the cotton strips placed there for its protection. Should the strips become moistened with the fluids much pain will result which would not be due to the operation but to defective technique. She should always prepare aseptically for the surgeon's visit the same as for any surgical dressing, having in readiness sterile cotton gloves, gown, instruments, hand solution, towels, gauzes, cotton, etc., and where the house is electrically lighted a "drop" light should be at hand. The patient should be placed in a good, strong light.

Cocaine, 40-per-cent solution, is driven into the segregated area by phoresis, the anode of the galvanic current being at the breast while the cathode is connected with a large dispersing pad on the back. As high as 200 m.a. of current may be used, varying with the susceptibility of the patient. This cocainization properly and thoroughly executed should be absolutely painless.

The cuticle is then destroyed with caustic potash.

Tissues outside of the condemned area are properly protected from accidental chemical contact by means of strips of cotton flannel saturated with flour paste (a very important part of the technique).

A mixture of zinc chloride with powdered sanguinaria plus water to the point of proper working consistency is applied and protected with dressings.

In twenty-four or forty-eight hours a layer of devitalized tissue is aseptically removed and a fresh application is made, repeating the process each twenty-four hours until the entire breast, including such underlying tissue as might be harboring infection, has been removed.

Nature is now allowed to complete the operation in her own way—*i.e.*, by phagocytosis, establishing its own line of offense and defense, the while sealing all possible ports of entry against reinfection; and finally casting off the dead from the living, leaving a smooth granulating surface. Strict asepsis should be maintained throughout.

Skin-grafting after Ochsner is done under cocaine cataphoresis safely and painlessly, the patient herself contributing the grafts, being the while a most interested spectator. When this operation is properly timed and performed, the grafts will all "take," and the new skin in due time become freely movable upon its new base.

GONOCOCCUS VACCINATION AS A GUIDE IN DIAGNOSIS AND TREATMENT.

London (*American Journal of Surgery*, November, 1912) states that in obscure cases, in which the gonococcus is a possible infecting agent, as in joint, tendon, endocardial, and peritoneal or pleural infection, as well as in involvements of the genito-urinary adnexa, both male and female, a means of diagnosis not dependent upon the discovery of the gonococcus itself is of decided value. As is well known, it takes from four to six negative findings, at intervals of seven to ten days, to show that the prostatic and vesicular secretions no longer harbor gonococci. In general infections, such as joint involvement, some other method is of the greatest importance, especially in women from whom no discharge may be obtainable. In such cases we have as aids in diagnosis the complement deviation test, an examination of the patient's blood, similar to the Wassermann test, and several reactions, both local and general, to gonococcus virus.

A subcutaneous injection of gonococcus vaccine, 50,000,000 to 100,000,000, causes a general reaction similar to the general tuberculin reaction, with pains in the infected areas, such as the joints, prostate, etc., and a febrile reaction. For local reactions two methods are available: one is to scarify the skin, and rub in the virus, which is a glycerin suspension of gonococci; the second is to inject the gonococci, suspended in normal saline solution, into the endodermal layer of the skin with a hypodermic syringe and fine needle. Bruck was the first to call attention to this first or Von Pirquet type of reaction. Irons also follows Von Pirquet's method. In studying the reaction to gonococcus vaccine London

employs the second method, which corresponds to the Hamberger "stich" reaction method in tuberculin diagnosis. Normal saline solution can be used as a control injection.

To obtain this reaction, the skin on the inner surface of the arm or forearm is cleansed with alcohol or ether, which is allowed to evaporate; then a saline suspension of dead gonococci in a strength of 50,000,000 to 100,000,000 per Cc. is injected into the skin with a fine hypodermic needle and a glass syringe, both of which must be clean and sterilized by boiling in plain water. We must avoid adding any soda to the solution for boiling, for the soda may prove irritating to the skin, and thus vitiate the test. Enough of the suspension should be injected to put the skin under slight tension, which is shown by the formation of a slight wheal (two or three minims are enough); this shows that the injection is not subcutaneous, as then no wheal would appear.

A positive reaction occurs in about twenty-four hours—a central papule, red in color, surrounded by a lighter red areola, 2 to 3 inches in diameter. Occasionally the entire area is elevated. Oftentimes the central papule is really composed of two parts, one at the periphery of the injection and one at the point of entrance of the needle. In one case of prostatitis, in which the primary infection occurred thirty years previously, the reaction showed an areola 3 inches in diameter, a very large central papule, and two small vesicles upon its summit. A control case of chancroid, injected with the same preparation and dosage, 2 minims of a suspension holding 500,000,000 per Cc., gave not the slightest reaction. The reaction appears in twenty-four hours and fades in one or two days; occasionally the central papule lasts seven to ten days.

A previous injection, within ten to fourteen days in negative cases, may cause a positive reaction on second injection. This is an anaphylactic phenomenon.

Cured cases give negative reactions; this is important for young people who desire to marry and want to know their condition. In this connection it is interesting to note that Bruck suggests the possibility of preventive vaccination against developing gonorrhea. The objection to this is the fact that healed cases of gonorrhea give negative reactions, which means that the body does not stay sensitized very long after the active focus is healed. His idea, however, may be turned to advantage in this way: vaccination against the complications of gonorrhea may be tried simultaneously with the local treatment.

In cases in which the causative agent of an affection, such as synovitis, is known, the skin reaction may be negative. In seeking for an explanation in such a case it is probable, from present ideas of anaphylaxis, that the failure to react to foreign protein of a specific nature is as follows: In inactive cases—that is, in cases not progressive and not associated with septic phenomena—such as chills, sweats, fever, rapid pulse, emaciation, etc., the immunizing apparatus has not recently been stimulated to react against this specific irritant; in other words, it has not been sensitized. This may help to guide us in a choice between vaccine and serum treatment. If the defensive powers of the body do not produce antibodies to antagonize the specific proteins contained in specific germs, or their toxins, measures looking toward an active immunization by vaccines are apt to fail, and we must strive to obtain a passive immunization by means of protective sera, containing preformed the specific antibodies for the specific microorganisms involved. This may help to account for the fact that widely different results are obtained in gonorrheal arthritis by the vaccine treatment. While some results have been brilliant, others have been disappointing; it must be borne in mind, however, that there are border-line cases that react to vaccination only after prolonged treatment, the first injections probably sensitizing the patient to the latter injections, thus ultimately causing the reaction and cure.

Of 18 cases in which the gonococcus was found, 16 gave a positive reaction. Of 14

control cases, non-gonorrheal, 12 gave no reaction, two gave a slight reaction. Of three cases of gonorrheal arthritis, two gave a positive reaction. In the case giving a negative reaction, staphylococci were found in the prostate, but no gonococci. In three cases in which the complement deviation test was performed, two were positive and one negative to the blood test, but all three were positive to the skin. In two cases of stricture, one was positive and one negative. Of 18 cases which were clinically gonorrheal, but in which no gonococci were found, in 13 the skin test was positive, in two negative, and in three doubtful.

The advantages of this test are: Simplicity of application, minimum of traumatism, and accuracy of dosage, certainty of application of the virus to the endoderma; this is especially desirable when the reaction is negative. Employment as a visible opsonic index in vaccine treatment.

REDUCTION OF CANCER MORTALITY.

WAINWRIGHT (*International Journal of Surgery*, October, 1912) states that recently the Cancer Commission of the Pennsylvania Medical Society collected statistics on four hundred cancer cases applying to the surgeon for a radical cure. These have been tabulated in several ways, and the results of this tabulation must be somewhat startling even to experienced surgeons who knew that delay in cancer was a frequent evil, but who may not have realized before just how common it is in this country. For instance, of the superficial cancers only 68 per cent were operable at the time they applied to the surgeon; of the deep-seated, only 48 per cent. There can be no question but that these figures are much above the actual condition, because the blanks from which the commission obtained these averages were filled out by surgeons from their case records, and busy surgeons are constantly seeing in their clinics and in consultation advanced cases of cancer which are so hopelessly inoperable that they at once pass them on to the family physician again without any special record. Also the term operable is unduly stretched by the surgeon himself, because if he decides to make an attempt he, of course, places his patient in the operable class, but a prompt recurrence will frequently show that the case was, practically speaking, inoperable after all. Therefore, Wainwright thinks it is safe to say that even at the present time over one-half of the cancer cases that come to the surgeon for relief are in an inoperable condition.

Another very interesting fact that the Pennsylvania statistics show is that in 39 per cent of the superficial cancers and in 46 per cent of the deep-seated ones the patients give a definite history of some form of chronic irritation or some one of the so-called precancerous conditions. In other words, about half of the persons who presented themselves to the surgeon suffering from malignant disease had had a previous simple condition which probably could have been so treated that cancer would not have developed at all. In the face of these figures it would hardly seem too much to say that if the public and the general medical profession had the proper attitude on these matters, not only would the mortality of cancer be diminished, but even the morbidity would be reduced by almost 50 per cent.

The responsibility for delay lies in two quarters, namely, with the public and the general profession. We all have had men and women come to us in the late stages of malignant diseases, and on questioning them we find that they have been aware that something was wrong for a long time, but they will say that they did not know that the early symptoms had any serious significance, and they have not applied to a surgeon until the onset of pain or until health and strength begin to fail. As Moynihan has said, these patients have ignored the signs and symptoms that indicate the necessity of surgical treatment, and they have come to us only when they saw the signs of impending death. The Pennsylvania statistics show that in the superficial cancers the patients have delayed through this ignorance on an average of one year and six months; in the deep-seated ones, one year

and two months. That is, most of the cases that consult surgeons have had the disease for over a year. This delay is responsible for the very great majority of deaths from cancer. Four-fifths of these growths occur in regions which are easily accessible to surgery, and in nearly all instances the cancerous condition makes itself evident while it is still in a local and permanently curable condition. The only solution of this difficulty, of course, is education of the general public.

The Pennsylvania Commission has been trying to educate the public since it was appointed three years ago. The assistance of the lay press has been obtained, and the commission has written a number of newspaper articles describing the early signs and symptoms of cancer in various parts of the body in simple language. These articles have been published in various papers throughout the State and have reached a great many people. Furthermore, in a number of instances it has been possible to arrange for addresses before certain clubs and for certain public meetings. In these addresses and newspaper articles they have of course laid special emphasis on the importance of early symptoms and the necessity of the patient having an immediate investigation the moment they appear. Following the lead of Childe of England, they have tried to teach the people that some of these early signs are in reality danger-signals, and are just as much to be acted upon immediately for the safety of the sufferer as is a danger-signal at sea or on the railroad. They have tried to teach women that any irregular vaginal bleeding is a danger-signal that must be investigated at once. It may be a warning of the onset of a very serious condition. The warning may not be repeated until the disease has gone beyond any hope of cure. They have tried to teach women that any small lump in the breast is a danger-signal and demands immediate attention. They must not wait to see if it will grow, or if it will pain them, or if it is going to affect their general health. The danger-signals to be taught in cancer of the lip, mouth, tongue, skin, alimentary canal, etc., are of course well known and need not be detailed.

In bringing these matters before the laity great pains has been taken to do it so that it will not cause any undue alarm or dread. Indeed, the real message in regard to cancer is decidedly one of hope, and an individual who has an ordinary understanding of the warning symptoms has little to dread. The only person who should dread a cancer is he who through ignorance allows it to creep upon him unawares and get a fatal grip before he knows that there is any serious trouble at all. The commission has tried to impress the people with the fact, first, that cancer in its early stages is a purely local disease involving only a few cells; secondly, that it nearly always manifests its presence while it is still in this local stage; and thirdly, that in this stage it is permanently curable by efficient treatment in almost every instance. Delay is the thing to fear and not the cancer itself.

Another means used of getting at the public is the trained nurse. Most nurses at the time they graduate do not know any more about the prophylaxis of cancer than do shop-girls. Yet very frequently a woman on account of what she thinks modesty dreads to tell a physician of any unusual condition in the pelvis or breast, but will frequently mention her trouble to a nurse whom she may know or may meet casually, so that nurses, if they have the proper knowledge, can very frequently advise a woman as to what course it is necessary for her to pursue under such circumstances. In order to teach nurses the commission has several times arranged for addresses by physicians at meetings of the State Nurses' Society, and they have also tried to induce every training school in the State to have a lecture given every year on cancer from this standpoint.

Much of the most important educational work is to be done with the medical profession itself. The figures already given show that there is a very disastrous delay on the part of the public, but an analysis of the Pennsylvania statistics in a different way reveals that the medical profession in gen-

eral is almost as much responsible for delay in cancer cases as is the laity. For instance, in four hundred reports on an average the cancer patients have been in the hands of the family physician for one year before applying for surgical treatment; so that in a very large proportion of cases the family physician is frequently directly responsible for the ultimate death of the patient. What is more significant still, reports show that in breast cases the physician first consulted did not make any examination at all in 3 per cent, and in 13 per cent of the cases there is a definite statement to the effect that he gave absolutely bad advice—that is, that he told the patient that it did not amount to anything, or that it would be best to wait and see what developed; or he applied some ointment or other form of treatment for no other purpose apparently than that of keeping the patient in his own hands.

In some of the other regions of the body the malpractice on the part of the physicians was more apparent still. In the stomach no local examination was made in 9 per cent of cases, and some form of bad advice was given in 20 per cent.

In cancer of the ovary there was no local examination in 14 per cent, and improper advice in 14 per cent.

A METHOD OF FIXING DRESSINGS AFTER APPENDECTOMY BY DEEP SUTURES.

PORTER (*Journal of the Royal Army Medical Corps,* November, 1912) adopts the following method: Before sewing up the external oblique aponeurosis, four deep silkworm-gut sutures are inserted about ¼ inch from the edge of the skin incision. Numbers 1 and 4 pass through the tissues superficial to the external oblique. Numbers 2 and 3 pass through the skin and external oblique on one side, about ¾ inch from their cut edges, and taking up a little of the internal oblique muscle, pass through the external oblique and skin at corresponding points on the other side. The four sutures are most conveniently passed by means of a 4-inch straight Hagedorn needle. The ends of these sutures are collected and held by a Spencer Wells forceps on either side.

The edges of the cut external oblique are then united by a continuous thread, and the skin by interrupted silkworm-gut or Michel's clips. The area having been again painted with tr. iodi, a pad of about twenty thicknesses of gauze 1½ inches wide, and extending well beyond the last suture, is held in position and the four sutures tied firmly over it.

No other dressing or bandage is applied.

At the end of forty-eight hours the exposed ends of the deep sutures near the skin are painted with tr. iodi and cut. The pad is peeled off in a line with the long axis of the wound, and the deep sutures withdrawn. They usually come out with the pad.

The exposed area is wiped with methylated spirit, and left without any protection. The sutures are removed on the seventh day, and the patient allowed up. No stitch abscesses have resulted, nor any infection of the wound.

The advantages of this method appear to be: (1) Great economy of dressings and bandages; (2) increased comfort to patients in hot climates owing to the absence of masses of cotton-wool and bandages; (3) absolute protection of the wound until it can safely be left exposed; (4) total occlusion of dead spaces in the operation area, and consequent limitation of exudation with diminished risk of suppuration.

The author has used this method in two central incisions with great success.

PITUITRIN AS A POSTOPERATIVE TONIC.

JASCHKE (quoted in *American Journal of Obstetrics,* November, 1912) presents the results of a systematic trial of this preparation in a series of forty-four cases, including a variety of plastic and other gynecological operations, with especial reference to the bladder function. In twenty-one instances the bladder was spontaneously

emptied on the day of operation, avoiding the necessity of catheterization. In fourteen cases spontaneous urination occurred on the second day, and in five cases there was no result. The drug also acts as a cardiovascular tonic, and, as compared with adrenalin, its action in overcoming shock is very much more prolonged.

REVIEWS.

FURTHER RESEARCHES INTO INDUCED CELL-REPRODUCTION AND CANCER. Vol. II, Consisting of Papers by H. C. Ross, M.R.C.S Eng., L.R.C.P. Lond.; J. W. Cropper, M.B., M.Sc. Liverpool, M.R.C.S. Eng., L.R.C.P. Lond., and E. H. Ross, M.R.C.S. Eng., L.R.C.P. Lond. With illustrations. The John Howard McFadden Researches. London: John Murray, Albemarle Street, W. April, 1912. Pp. 125.

The present volume is a continuation of the publications of the John Howard McFadden Research, having been preceded by those of December, 1910, and September, 1911. The volume embraces eight chapters and contains nine illustrations. The first chapter, by H. C. Ross and J. W. Cropper, is devoted to a consideration of the experimental production in animals of cell-proliferation resembling benign tumors and brought about by the direct inoculation of auxetics. The production of cell-proliferation in granulomatous tissue following the injection of guanidine, tyrosine, theobromine, and derivatives from blast-furnace tar is detailed; the authors think the evolved masses can be rightly called tumors. Chapter II, by the same authors, deals specifically with the question of epithelial proliferation. The conclusion arrived at may be stated in the authors' own words (p. 34): "It would seem therefore that the experiments have demonstrated that conditions resembling the appearances of malignant epithelial cell-proliferation and infiltration can be produced by the inoculation of combinations of auxetics and augmentors. By the sections it is difficult to distinguish between this artificially induced proliferation and that seen to occur in natural epithelioma."

Chapter III, by H. C. Ross, contains a detailed description of changes observed in lymphocytes dividing on jellies. The views announced are in some respects quite unorthodox. H. C. Ross and J. W. Cropper in Chapter IV and the succeeding undesignated chapter record their observations on cell division in the eggs of Ascaris megalocephala and on the Gasworks Pitch Industries and Cancer respectively. Guardedly the authors indicate their belief that the epithelial proliferation and infiltration (cancer) result from the action of auxetics and kinetics present in tar and pitch. In Chapter VI, J. W. Cropper reports the presence in normal serum of a substance deleteriously influencing the action of auxetics on cell division.

Edward Halford Ross (Chapter VII) has applied the jelly method to a study of trypanosomes, and in the following chapter (Chapter VIII) he describes the development of a leucocytozoön of guinea-pigs (Kurloff's bodies) investigated by the same method.

The volume is largely a record of studies based on the use of jellies containing dyes and various substances. The bookmaking is of the better grade. C.

BACTERIA. By Dr. Max Schottelius. With 10 Colored Plates and 33 Illustrations in the Text. Second Edition. Translated by Staff-Surgeon Herbert Geohegan, R.N. London: Henry Frowde, Oxford University Press, and Hodder and Stoughton, Warwick Square, E. C. Pp. 324. Price $3.50.

The title-page does not inform us for what class of readers the volume is intended, but in the preface to the second edition reference is made to "lay circles," and throughout the book numerous indications justify the conviction that it is adapted to those quite unfamiliar with any of the details of microbiology. Assuming that this view is the correct one the book may be cordially indorsed. Dr. Schotellius informs us that he, in a way, inherited the task from the late Prof. Dr. Hans Buchner of Munich,

and further that he recognizes the difficulty of preparing an epitome of so vast a subject. The six chapters are headed Position of Bacteria in the Scheme of Nature, Bacteriological Research Methods, Disease and the Means of Combating Infectious Diseases, Immunity and Protective Inoculation, Infectious Diseases, and Protozoa as Pathogenic Organisms. The chapter on methods is exceptional in that it avoids real technique and discusses principles. The epitomization of the theories of immunity is especially well done. Only a few infectious diseases are considered, and these rather as illustrative types. Sometimes the author appears to fail to drive home a most important point—for example, the relation of biting insects to plague and possibly to leprosy; and then again there are evidences that the work is not strictly up to date. It is stated (p. 267) that the B. lepræ cannot be cultivated, and again (p. 274) that the gonococcus cannot live apart from the human body. As no other author has produced a book absolutely up to date and without errors, such lapses need not be dwelt upon. The book contains numerous most interesting evidences of wide collateral knowledge skilfully interpolated; as examples may be cited references to the author's familiarity with the fact that enlarged lymphatic nodes portended sleeping sickness, and to Livingstone's suggestion that some connection possibly existed between glossina flies and "the pest of powerlessness"—nagana—both demonstrated facts a half-century later.

The translator's work is well done, the illustrations of high merit, and the bookmaking quite acceptable. The price is due, no doubt, to the exceptionally good colored illustrations. W. M. L. C.

CLINICAL STUDIES FOR NURSES. By Charlotte A. Aiken. Second Edition, Thoroughly Revised. W. B. Saunders Company, Philadelphia, 1912. Price $2.00.

We understand that since the first edition of this book appeared in 1909 it has been reprinted twice before coming to its second edition. There can be no question that its popularity is well deserved. It contains an immense amount of valuable information culled from the medical literature of the day. We confess that we can see no object in burdening its pages with pictures of pathological lesions, since the nurse, if she is kept within the line of her duty, has nothing whatever to do with questions of this character. So, too, we fail to see the good sense in providing the trained nurse with statistics as to the relative frequency of death-dealing diseases. A knowledge concerning such subjects leads only to the discussion of matters which do not concern her function with the patient and the relatives, and one of the difficulties in the training of nurses to-day is teaching them all that they should know without giving them a smattering of knowledge concerning matters which do not concern them. We cannot avoid the hope that the next edition will be as complete in all the details which concern a nurse as the present one, leaving out the points that we have criticized. The space gained by leaving out this material, which is manifestly out of place, can be well utilized still further by illustrations of bandaging and various technical procedures which every nurse ought to know.

PRIMARY STUDIES FOR NURSES. By Charlotte A. Aikens. Second Edition, Thoroughly Revised. W. B. Saunders Company, Philadelphia, 1912. Price $1.75.

The authoress of this book is also responsible for five other books dealing with the duties of nurses or with hospital management. She is, therefore, busy with her pen. The present volume is designed as a text-book for first-year pupil nurses, and contains a great deal of information in regard to anatomy and physiology in its earlier pages. A table of infectious fevers, which covers a space equivalent to three pages, is well gotten up and will doubtless prove of quite as much interest to the physician as it will to the nurse, and the excellent advice is given that parents should be instructed that a mild attack of one of the infectious diseases in no way diminishes the necessity of protecting other members of a family from the infection. When we noticed the first edition of this book we called attention to the perfectly useless

illustrations of china and glassware on trays for the sick. They show nothing, and take up valuable space. The same criticism holds true about a picture of a dish of nuts and one of devilled eggs.

THE RIGHT OF THE CHILD TO BE WELL BORN. By George E. Dawson, Ph.D. The Funk & Wagnalls Company, New York, 1912. Price by mail, 82 cents.

The subject of eugenics is one which has always attracted attention, but at the present moment seems to be particularly in the foreground. Whether it is possible for a professor of psychology in a school of Religious Pedagogy to deal with this matter scientifically we must leave to the reader. In the first ten chapters the author covers a wide field, dealing with the decay of parental interest, the desire for children, the biological fitness for parenthood and the moral fitness, educational training in parenthood, romantic love and eugenics, religion and eugenics, racial ideals of parenthood, the true builders of nations and the creation of life. While it is the idea of some persons that cold science has little to do with romance, nevertheless it is comforting to know that in the author's opinion there is no danger that romantic love between the sexes will perish with the cultivation of the science of eugenics.

THE PSYCHOLOGY OF INSANITY. By Bernard Hart. Cambridge University Press. G. P. Putnam's Sons, New York, 1912. Price 40 cents.

Under this somewhat ponderous and inclusive title Dr. Hart has managed to place in a small volume of less than 200 pages an immense amount of interesting information. The book is not one which will appeal to the alienist or the medical man who is devoting himself to the study and treatment of the insane, but its easy style and the attractive manner in which the author presents his facts, combined with the low price at which it is sold, will, we believe, make it popular with the rank and file of the profession. Altogether there are twelve chapters with a bibliography and an index. Starting out with a history of insanity, the author passes to the psychological conception of insanity, its phenomena, dissociation, complexes, conflict, repression, manifestation of repressed complexes, projection, the irrationality of the lunatic, and phantasy. The last chapter deals with the significance of conflict. The bibliography comprises references to only nine authors.

PATHFINDERS IN MEDICINE. By Victor Robinson. Medical Review of Reviews, New York, 1912.

The title of this book well describes its object. It is dedicated to Ernst Haeckel, and has an introduction by Abraham Jacobi. The articles which make it up were most of them prepared not with the idea of putting them in book form, but for current medical literature. Possibly the most interesting to the general reader will be those upon Galen, Paracelsus, Paré, Hunter, Laennec, Semmelweis, and Darwin. Fifteen full-page illustrations representing the "pathfinders" who are discussed are well executed. The book is an interesting and valuable one for mental culture and easy reading.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by Henry W. Cattell, A.M., M.D. The J. B. Lippincott Company, Philadelphia, 1912. Volume IV.

For many years we have noticed the appearance of the diffierent volumes of this well-known periodical, which always is gotten out in excellent form and good type and covers a wide field. In the present volume there are departments of diagnosis and treatment, medicine, surgery, gynecology, biography, economics and insanity, with a large number of illustrations which, all of them, are excellent.

THE PRACTICAL MEDICINE SERIES. Volume V, Obstetrics. Edited by Joseph B. De Lee, A.M., M.D. With the Collaboration of Herbert M. Stowe, M.D. Series 1912. The Year Book Publishers, Chicago.

Volume V is devoted to the progress in obstetrics, considered under the general headings of Pregnancy, Labor, the Puerperium, and the New-born. Among the many interesting and useful observations is that quoted from Wolfine to the effect that

by the introduction of what are termed Semori tablets into the vagina a large amount of foam is produced which is equally lethal to the spermatozoa and to the gonococci.

Mosbacher's important communication concerning serodiagnosis of pregnancy by the epiphanin reaction is briefly abstracted, with an editorial note to the effect that later experiments have failed to confirm the value of the test.

On the subject of abortion a case is recorded in which a woman injected a pint of saline solution and then a quart of vinegar into her bladder, although it was afterward shown that she was not pregnant.

As to salvarsan in obstetrics Jaeger has apparently shown that the pregnant woman bears this drug well, nor does the fetus suffer from its use. Of sixty-six infants treated, twenty-one died. The applications of scopolamine and morphine, pituitrin, and pantopon alone are considered at some length. There is an interesting small section on the Puerperium and a final chapter devoted to the New-born. The book gives an excellent summary of a serviceable year's literature.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

The medical profession of this country has passed through a strenuous time during the past month. At the end of December a representative meeting held under the auspices of the British Medical Association decided that the terms offered them by the Chancellor of the Exchequer for working the Insurance Act were still unacceptable and that the pledge not to take service under the act should continue in force. As only a fortnight remained before the medical benefits under the act became due, the position was a decidedly difficult one. The meeting was scarcely over before the stampede began. Threats were freely used of starting a whole-time government medical service, and pressure was brought to bear in various other ways to induce practitioners to go upon the panels. Statements were made in the government newspapers as to the filling up of panels in districts where it was known that none of the resident doctors had gone back on their pledges. These tactics were successful in most of the provincial and country districts, and many local associations decided to allow their members to waive the pledge and to put their names upon the panel. Only in London has the resistance to the pressure been organized and maintained. Finally, the British Medical Association has just held another representative meeting in which the decision of the last meeting was reversed and members were released from their pledges. After this meeting there will probably be a considerable addition to the names on the panels, although a number of London doctors declare that they will still continue to fight for better terms. On every hand there is a considerable amount of resentment at the methods which have been used to break up resistance to the act and to force men to go upon the panels against their wills. The first agreements between the doctors and the insurance committees only hold good for three months, so that it is possible that after a short trial in working the act modifications may be introduced to make the scheme more acceptable to practitioners, but it is unlikely, now the organized resistance of the whole profession has been broken down, that any substantial concessions will be made.

The Registrar-General's report for the past year shows what an influence the weather has on the rate of mortality. Nineteen hundred and twelve had a bad record as far as sunshine went, but on the other hand there were no extremes of heat or cold, and in consequence the death-rate was the lowest in any recorded year. There seems no doubt that a wet year means also a healthy year, and that the chief meteoro-

logical element in favor of a low death-rate is the absence of sudden and great changes of temperature. Prolonged fog will cause a rise in the death-rate, and if fog be combined with a low temperature even for a short period, the effect will be disastrous upon persons at both extremes of life.

At the meeting of the International Congress to be held in London this summer there will be an interesting exhibition of historical medical objects. It will include all kinds of rare and curious things relating to medicine and pharmacy, and examples of medical deities of savage peoples from all parts of the world. There will be relics of the practice of alchemy in olden times, with models of ancient pharmacies, and an endeavor will be made to trace the evolution and development of the chief surgical instruments of to-day.

Although peace has not yet been arranged in the Near East, the first contingent of nurses who went out to nurse the wounded in the Balkans has returned to London. They have spent a strenuous three months nursing the wounded within the sound of the guns, though they did not see any actual fighting. This contingent consisted of sixteen members of the Women's Sick and Wounded Convoy Corps, and they were the only British women with the Bulgarian army. They were stationed at a base hospital at Kirk Kilisse, and in their ten weeks' stay tended over seven hundred men. The fact that various Red Cross units are returning from the front indicates that the authorities do not contemplate any renewal of hostilities.

Mr. Sydney Holland, the well-known chairman of the London Hospital, has issued an appeal for £100,000 in addition to the £110,000 required annually to keep up the hospital, the largest in England. During the past five years the hospital has treated over 72,000 in-patients and over a million out-patients. In his appeal Mr. Holland pointed out that the Insurance Act would only relieve them of a few of their out-patients, as those requiring operations and specialist treatment would remain as before, and their only chance of receiving them will be through the agency of the hospitals. Their claim, therefore, on the charitable public should be as strong as heretofore.

Sir Ronald Ross gave a most interesting lecture at the Royal Colonial Institute recently, when he gave a history of the modern fight against tropical diseases. He said that the first step in the antimalarial campaign was taken by Empedocles of Sicily about B. C. 300, and it showed that the Greeks knew the connection between the malarial evil and stagnant water. The lecturer thought that the reason why tropical Africa had not become civilized long ago was the incidence of tropical diseases, which kept down the numbers of the natives so successfully that the survivors could only exist in a semibarbaric state. In many places malaria affected every one of the children, and in adult life only a partial immunity relieved them of incessant illness. In introducing the lecturer Mr. Austen Chamberlain announced that £50,000 had been secured of the £100,000 asked for to put the School of Tropical Medicine on a secure basis.

The value of open-air instruction for schoolchildren was dealt with at the North of England Education Conference. One speaker pointed out that outdoor education has been practically restricted to the physically defective, and suggested that the time had come for a great extension of the practice of working in the open air for schoolchildren of every type, and further that every new school should possess its own garden, so that the children could follow the life stories of plants at first hand. The duties of employers toward the young were also emphasized; if an employer used child labor he was morally bound to see that the child had the opportunity of continuing his education at an evening school or by some other means. Several speakers were in favor of lengthening school life by raising the age at which children were legally permitted to be employed.

Several medical men were included in the list of the recipients of New Year honors. They include Dr. Francis Darwin, the son of the famous Charles Darwin, and Dr. Philip, whose work in the prevention

of tuberculosis has made his name known over a wide area. One of the new knights, Sir George Turner, has become a victim to his scientific zeal, for he has contracted the disease of leprosy. While he was employed in South Africa during the war, he became interested in the cases of leprosy that he saw, and after the war was over he worked almost exclusively among leper patients, and afterward engaged in bacteriological investigation of the disease. While carrying on his investigations he noticed that there were leprous patches on one of his hands. Since then the disease has extended, and the whole arm has become affected and useless. This disaster has not deterred the investigation, and Sir George is still carrying on his researches, and doubtless he will be able to throw some light on this obscure disease. The newly conferred honor is a fitting acknowledgment of bravery and devotion to science.

LAPAROTOMY UNDER LOCAL ANESTHESIA BY QUININE AND UREA HYDROCHLORIDE.

To the Editor of the THERAPEUTIC GAZETTE.

SIRS: The following case is of such interest that we think it worthy of record:

Patient M. R., married, aged fifty-two, was admitted to the Swedish Hospital October 23 for a radical operation for hernia, and gave the following history: In April, 1912, while working in Dakota, he got a pus infection in a finger. This extended into the arm, which was amputated under a general anesthetic. Retching and vomiting after the operation were very severe, and a swelling appeared upon the anterior aspect of the abdomen. This was variously diagnosed, and at one time was opened and some pus was evacuated.

On physical examination we found a ventral hernia about six inches in diameter, and advised operation. On the 24th of October the patient had developed a bronchopneumonia. A cotton jacket was applied, and elixir heroin and terpin hydrate was given him in fluidrachm doses every three hours. Improvement gradually followed, and October 30 was decided upon as the date for operation. October 29, at 3.00 A.M., one fluidounce oleum ricini was given. The patient was taken to the operating room at 10.30 A.M., October 30. It was deemed advisable to do the operation under local anesthesia, if possible, for two reasons: First, hernia had resulted from straining during the retching and vomiting following a general anesthetic; and, secondly, some bronchopneumonia was still present.

Quinine and urea hydrochloride solution (P. D. & Co.) was selected as the local anesthetic, and 15 Cc., diluted with an equal part of normal sodium chloride solution, was injected by Schleich's infiltration method. After sixty minutes the operation was begun, and the patient had practically no pain during the procedure, although adhesions were very extensive in the sac and throughout the peritoneum. All the adhesions were broken up and the flaps sutured. A portion of the abdominal wall, about 4½ inches long and one inch wide, was removed, muscles and fascia were coapted, and the patient was returned to his room at 12.40 P.M. He was quite talkative during and after the operation, and insisted that he felt practically no pain at any time.

After returning the patient to bed his pulse was 77, respirations 20, and the temperature 98.6° F.

October 31, temperature 99.8°, pulse 88, respirations 25.

November 1, temperature 99.5°, pulse 90, respirations 25.

November 2, temperature, pulse, and respirations normal, and remained normal until discharged.

At no time did this patient suffer anything worse than slight discomfort. The dressings were removed on the twelfth day, when we found absolute union, with not even a stitch abscess.

This case is remarkable on account of the extent of the incision and the amount of inflammatory adhesions broken up, without any appreciable discomfort to the patient, after the use of this new local anesthetic.

Yours truly,

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